DISTRIBUTION AND VARIABILITY OF PRECIPITATION CHEMISTRY IN THE CONTERMINOUS UNITED STATES, JANUARY THROUGH DECEMBER 1983

BY JOSEPH F. RINELLA AND TIMOTHY L. MILLER

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CONVERSION FACTORS AND ABBREVIATIONS

For readers who may prefer to use inch-pound units rather than the metric units (International System) used in this report, values may be converted by using the following factors:

Multiply metric unit	By	To obtain inch-pound unit
	Length	
millimeter (mm)	0.03937	inch (in.)
centimeter (cm)	0.3937	inch (in.)
meter (m)	3.281	foot (ft)
kilometer (km)	0.6214	mile (mi)
	Area	
square meter (m^2)	10.76	square foot (ft^2)
	Volume	
liter (L)	1.057	quart (qt)
	Mass	
gram (g)	0.03527	ounce, avoirdupois (oz)
milligram (mg)	0.000003527	ounce, avoirdupois (oz)
	Specific Conductance	
microsiemens per centimeter at 25 degrees Celsius (μs/cm at 25° C)	1.0	micromhos per centimeter at 25 degrees Celsius (umho/cm at 25° C)

DESTRIBUTION AND VARIABILITY OF PRECIPITATION CHEMISTRY IN THE CONTERMINOUS UNITED STATES, JANUARY THROUGH DECEMBER 1983

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ABSTRACT

Analyses of atmospheric precipitation samples, collected during the 1983 calendar year from 109 National Trends Network sites in the United States, are presented in this report. The sites were grouped into six geographical regions based on the chemical composition of the samples. Precipitation chemistry in these regions was influenced by proximity to (1) oceans, (2) major industrial and fossil-fuel consuming areas, and (3) major agricultural and livestock areas.

Frequency distributions of ionic composition, determined on 10 chemical constituents and on precipitation quantities for each site, showed wide variations in chemical concentrations and precipitation quantities from site to site. Of the 109 sites, 55 had data coverage for the year sufficient to characterize precipitation-quality patterns on a nationwide basis. Except for ammonium and calcium, both of which showed largest concentrations in the agricultural midwest and plains states, the largest concentrations and loads generally were in areas that include the heavily industrialized population centers of the eastern United States.

Precipitation quantity was found to relate to chemical-ion concentrations. Except for hydrogen, all chemical ions are inversely related to the quantity of precipitation depth. Precipitation quantities generally account for less than 30 percent of chemical variation in precipitation samples. However, precipitation quantities account for 30 to 65 percent of the variations of calcium concentrations in precipitation. Calcium concentrations are affected by increased dilution and increased soil moisture as precipitation quantities increase. Increased soil moisture reduces the availability of windborne calcareous-soil particles in the atmosphere. For samples containing the largest precipitation quantities, baseline chemical concentrations in all six regions of the United States approached mean background concentrations observed in precipitation in remote areas of the world. Baseline concentrations at sites in the western coastal region of the United States were most similar to concentrations in remote areas, and baseline concentrations in other regions were generally greater than those concentrations in remote areas.

For purposes of comparison, selected ratios of equivalent chemical concentrations in precipitation were examined. In regions where precipitation has a large ionic proportion of hydrogen-ion equivalents, much of the hydrogen-ion concentration could be balanced by sulfate equivalents and partly balanced by nitrite-plus-nitrate equivalents. Furthermore, in the regions where hydrogen-ion equivalents in precipitation were smaller, ammonium- and calcium-ion equivalents were necessary, along with the hydrogen-ion equivalents, to balance the sulfate plus nitrite-plus-nitrate equivalents. These two relations in precipitation samples indicate that in some regions the hydroxide ions or other basic anions associated with ammonium and calcium ions are neutralizing some of the hydrogen ions derived from sulfuric or nitric acids.

INTRODUCTION

Background

Over the last few decades, concern about acid precipitation has intensified, because effects of acid precipitation on natural and man-made systems can be detrimental. Precipitation that passes through an atmosphere contaminated by man-made emissions of sulfur and nitrogen oxides is chemically altered to a mixture of sulfuric and nitric acids. These acids, if present in sufficient quantity, adversely affect biological growth patterns in aquatic and terrestial systems and accelerate rates of corrosion and degradation of man-made materials. Industry, power production, residential heating, and transportation consume large amounts of fossil fuel and emit oxides of sulfur and nitrogen. These emissions now surpass those from natural processes, particularly in the northeastern United States (Likens and Butler, 1981). Atmospheric processes that control the formation and transport of acid-related pollutants are not well understood.

In 1980, Congress established the National Acid Precipitation Assessment Program to broaden support for research activities in cause-and-effect atmospheric processes and to develop a comprehensive national data base for use by decision makers and resource managers. In response to the need for a national data base on acid precipitation, the National Trends Network (NTN) was established for collection of precipitation-quality data to determine the spatial and temporal variations in precipitation chemistry.

Since 1978 and prior to establishment of NTN, atmospheric-deposition data were collected under the sponsorship of State Agricultural Experiment Stations as part of the National Atmospheric Deposition Program (NADP). In 1983, about 81 of the NADP sites were selected for inclusion in the NTN, and about 31 new NTN sites were established during the year. Operational coordination for NTN is provided by the NADP. NTN was designed to be fully operational with 150 sites, each located more than 10 km from cities or other area- or point-source emissions (Bigelow, 1984). Data from the network represent broad regional characteristics of the quality and quantity of precipitation in 54 ecoregions throughout the United States (Robertson and Wilson, 1985). Different geographical areas have widely differing geochemical capacities for neutralizing acid precipitation; thus precipitation of similar quality in different areas may not necessarily have comparable effects on aquatic or terrestrial ecosystems.

Purpose and Scope

The purposes of this report are threefold. The first is to determine spatial and seasonal variations of chemical concentrations and loads in precipitation in the United States by using network sites with sufficient data to characterize 1983 precipitation quality. The second is to relate the precipitation quality to the corresponding quantity of precipitation collected weekly. The third purpose is to summarize for each NTN site the precipitation-chemistry data collected in the 1983 calendar year and to provide the range of values (constituent concentrations or quantities) and frequency distribution of values for each constituent in precipitation.

Appendix I contains computations for the statistical summaries of the weekly composited chemical concentrations. The statistical summaries for each site are not individually discussed in this report. These summaries show wide variations in the frequency distributions of chemical concentrations and precipitation quantities from site to site. Summaries of the precipitation chemistry (10 measured chemicals and precipitation quantity) for each of the 109 NTN sites are shown in Appendices II and III. Those sites that have complete precipitation-chemistry records in 1983 (as defined by criteria outlined later in this report) are summarized in Appendix II. Summary statistics for those sites that have partial records are included in Appendix III.

The spatial and seasonal variations of chemical concentrations discussed in this report were determined by grouping and analyzing the annual loads and volume-weighted means of constituent concentrations listed in Appendices II and III. Chemical concentrations of the weekly composited precipitation samples also were analyzed to help determine spatial and seasonal variations and to relate the quality of precipitation to the quantity of precipitation.

Methods of Analysis

The approach used to meet the report objectives is descriptive and uses tabular and graphical presentations of the data. Unlike data obtained under controlled laboratory conditions, atmospheric-deposition data commonly are affected by many different factors. For example, pollutant emissions rates and wind speed and direction each may have values that vary widely between consecutive observations. Because of this variability, these data reflect a complex mixture of daily, monthly, seasonal, and annual influences, commonly of varying intensity. Data-analysis techniques, including the Kriging interpolation technique, nonparametric correlation analysis (Kendall Tau), regression analysis, cluster analysis for grouping data, and graphical displays that include histograms, box plots, and trilinear plots, are used to examine precipitation-quality and -quantity characteristics. Though these techniques may be used to gain insight into atmospheric processes, they generally do not explain cause-effect relations between potential contaminant sources and the chemistry of precipitation. As with other kinds of monitoring networks, information may be derived about spatial and temporal variations in precipitation quality, but determining the cause of these differences requires a different method of study.

DATA- AND SITE-SELECTION CRITERIA

The wet-deposition data summarized in this report were obtained from the Acid Deposition System (ADS) in April, 1985. This system is a centralized data repository for atmospheric-deposition chemistry data collected by monitoring networks in North America (Watson and Olsen, 1984). About 109 NTN sites were operating during 1983 (fig. 1; table 1). Not all of these NTN stations had a complete year of record, and about one-fourth of them began operation after June 1983. The number of sites operating during most of 1983 represents slightly more than half the total of 150 sites that will eventually make up the NTN.

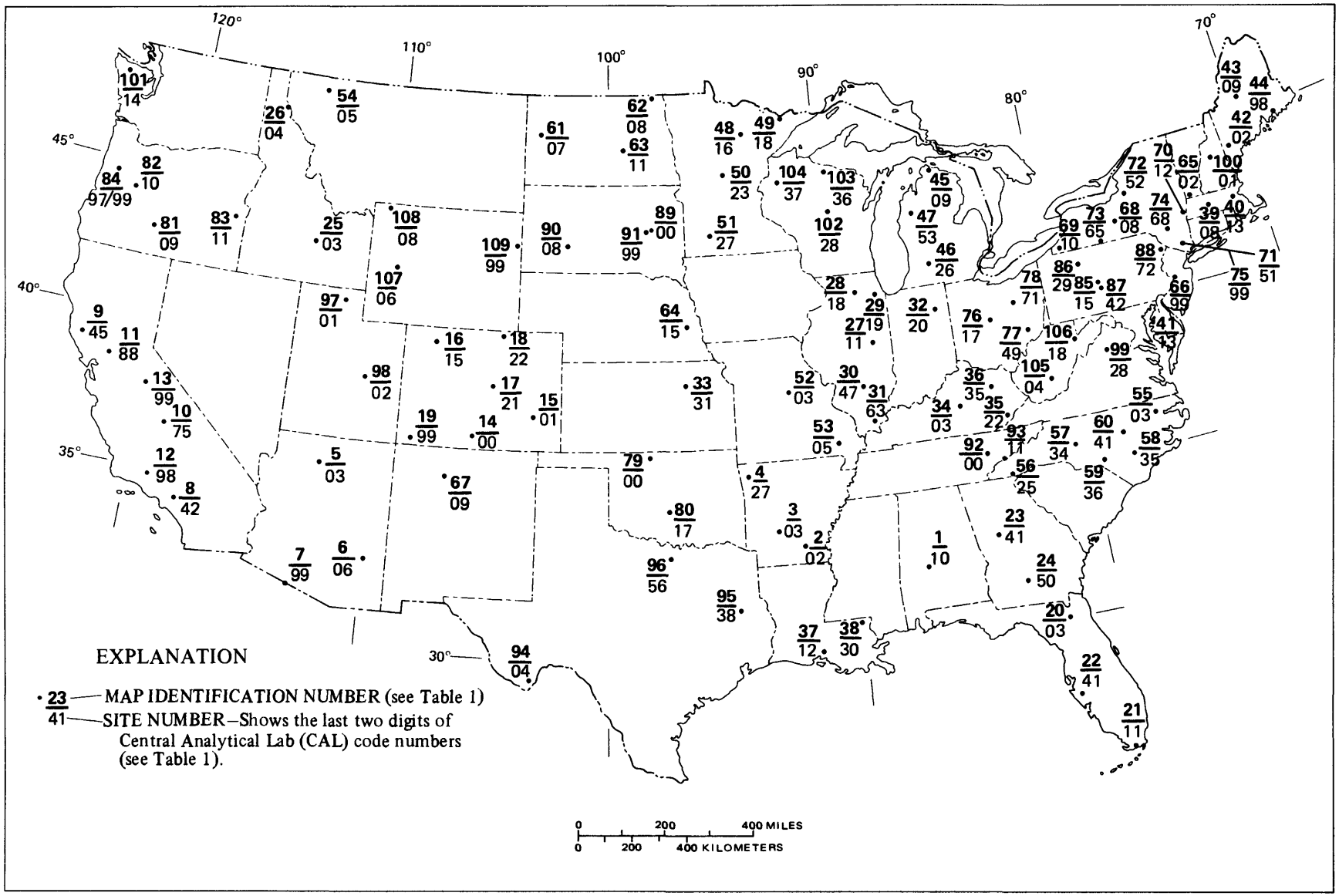


Figure 1.--National Trends Network sites, 1983.

Table 1.--National Trends Network stations included in 1983 calendar year annual summary report

Map ID number = numbers used to identify station locations in figure 1; CAL Number = Illinois State Water Survey central analytical laboratory number: the last two characters also identify station locations shown in figure 1.; ADS number = Acid Deposition System number; NADP = National Atmospheric Deposition Program.

Map ID number	CAL number	ADS number	NADP network number	Station name	Latitude	Longitude	Starting operation date
1	AL10	329a00	011000	Blackbelt, Alabama	32°27'30"	87°14'31"	Aug 31, 1983
2	AR02	268a00	040260	Warren 2WSW, Arkansas	33°36'15"	92°06'02"	May 25, 1982
3	AR03	330a00	040380	Caddo Valley, Arkansas	34°10'46"	93°05'55"	Dec 30, 1983
4	AR27	004a00	042700	Fayetteville, Arkansas	36°06'02"	94°10'24"	May 13, 1980
5	AZ03	068a00	030370	Grand Canyon, Arizona	36°04'18"	112°09'11"	Aug 11, 1981
6	AZ06	003a01	030620	Organ Pipe Cactus National Monument, AZ	31°57'02"	112°48'00"	Apr 15, 1980
7	AZ99	054a00	030360	Oliver Knoll, Arizona	33°04'17"	109°51'53"	Aug 25, 1981
8	CA42	270a00	054200	Tanbark Flat, California	34°12'27"	117°45'39"	Jan 12, 1982
9	CA45	007a00	054540	Hopland (Ukiah), CA	39°00'17"	123°05'05"	Oct 3, 1979
10	CA75	008a00	057550	Sequoia National Park, CA	36°34'09"	118°46'40"	Jul 8, 1980
11	CA88	009a00	058840	Davis, California	38°32'07"	121°46'30"	Oct 17, 1978
12	CA98	332a00	058501	Chuchupate Ranger Station, California	34°48'22"	119°00'38"	Aug 2, 1983
13	CA99	157a00	058850	Yosemite National Park	37°47'49"	119°51'30"	Dec 8, 1981
14	CO00	160a	060060	Alamosa, CO (composited sites 160a02 and 160a03)	37°26'36"	105°51'55"	Apr 22, 1980
14	CO00	160a02	060060	Alamosa, Colorado	37°26'36"	105°51'55"	Apr 22, 1980
14	CO00	160a03	060060	Alamosa, Colorado	37°26'36"	105°51'55"	Apr 22, 1980
15	CO01	333a00	060180	Las Animas, Colorado	38°07'04"	103°18'57"	Oct 4, 1983
16	CO15	173a00	061560	Sand Spring, Colorado	40°30'27"	107°42'07"	Mar 20, 1979
17	CO21	011a00	062120	Manitou, Colorado	39°06'04"	105°05'31"	Oct 17, 1978
18	CO22	012a01	062220	Pawnee, Colorado	40°48'23"	104°45'15"	May 22, 1979
19	CO99	029a00	061530	Mesa Verde, Colorado	37°11'56"	108°29'26"	Apr 28, 1981
20	FL03	015a00	100360	Bradford Forest, Florida	29°58'29"	82°11'53"	Oct 10, 1978
21	FL11	016a00	101190	Everglades National Park	25°23'40"	80°41'45"	Jun 17, 1980
22	FL41	338a00	109100	Verna Well Field, FL	27°22'48"	82°17'02"	Aug 25, 1983
23	GA41	017a00	114140	Georgia Station, Georgia	33°10'40"	84°24'22"	Oct 3, 1978
24	GA50	340a00	115000	Tifton, ARS, Georgia	31°28'25"	83°31'59"	Oct 4, 1983
25	ID03	019a00	130340	Craters of Moon, Idaho	43°27'48"	113°33'31"	Aug 22, 1980
26	ID04	271a00	130480	Headquarters, Idaho	47°37'40"	115°49'10"	Jul 20, 1982
27	IL11	020a00	141160	Bondville, Illinois	40°03'12"	88°22'19"	Feb 27, 1979
27	11IL	020c00	141161	Bondville , Illinois	40°03'12"	88°22'19"	Sep 20, 1983
28	IL18	024a00	141800	NIARC, Illinois	41°50'29"	88°51'04"	May 26, 1981
29	IL19	021a01	141980	Argonne, Illinois	41°42'04"	87°59'43"	Mar 11, 1980
30	IL47	161a02	144740	Salem, Illinois	38°38'36"	88°58'01"	Apr 15, 1980
31	IL63	023a00	146340	Dixon Springs, Illinois	37°26'08"	88°40'19"	Jan 30, 1979
32	IN20	343a00	152020	Huntington, Indiana	40°50'24"	85°27'50"	Aug 22, 1983
33	KS31	273a00	173120	Konza Prairie, Kansas	39°06'08"	96°36'33"	Aug 17, 1982
34	KY03	346a00	180360	Perryville, Kentucky	37°40'39"	84°57'25"	Nov 29, 1983
35	KY22	347a00	182260	Lilley Cornett Woods, KY	37°04'40"	82°59'37"	Sep 6, 1983
36	KY35	348a00	183560	Clark State Fish Hatchery	38°07'06"	83°32'49"	Aug 30, 1983
37	LA12	275a00	191260	Iberia, Louisiana	29°55'47"	91°42'54"	Nov 16, 1982
38	LA30	349a00	193060	Southeast Reasearch Station, Louisiana	30°48'41"	90°10'51"	Jan 18, 1983

Table 1.--National Trends Network stations included in 1983 calendar year annual summary report--Continued

Map ID number	CAL number	ADS number	NADP network number	Station name	Latitude	Longitude	Starting operation date
39	MA08	276a00	220815	Cadwell, Massachusetts	42°21'40"	72°23'27"	Mar 5, 1982
40	MA13	277a00	221325	East, Massachusetts	42°23'02"	71°12'53"	Feb 2, 1982
41	MD13	350a00	211320	Wye, Maryland	38°54'47"	76°09'09"	Mar 8, 1983
42	ME02	164a00	200277	Bridgton, Maine	44°06'27"	70°43'44"	Sep 30, 1980
43	ME09	030a01	200935	Greenville Station, Maine	45°29'23"	69°39'52"	Nov 20, 1979
44	ME98	257a00	200011	Acadia National Park, ME	44°22'27"	68°15'39"	Nov 3, 1981
45	MI09	031a00	230920	Douglas Lake, Michigan	45°33'40"	84°40'42"	Jul 3, 1979
46	MI26	032a00	232660	Kellogg, Michigan	42°24'37"	85°23'34"	Jun 26, 1979
47	MI53	033a00	235340	Wellston, Michigan	44°13'28"	85°49'07"	Oct 10, 1978
47	MI53	033a01	235340	Wellston, Michigan	44°13'28"	85°49'07"	Oct 10, 1978
47	MI53	033a	235340	Wellston, MI (composited sites 033a00 and 033a01)	44°13'28"	85°49'07"	Oct 10, 1978
48	MN16	034a00	241660	Marcell, Minnesota	47°31'52"	93°28'07"	Jul 6, 1978
49	MN18	166a02	241840	Fernberg, Minnesota	47°56'45"	91°29'43"	Nov 18, 1980
50	MN23	352a00	242360	Camp Ripley, Minnesota	46°14'58"	94°29'50"	Oct 18, 1983
51	MN27	035a00	242720	Lamberton, Minnesota	44°14'14"	95°18'02"	Jan 2, 1979
52	MO03	252a00	260380	Ashland, Missouri	38°45'13"	92°11'55"	Oct 20, 1981
53	MO05	253a00	260560	University Forest, MO	36°54'39"	90°19'06"	Oct 27, 1981
54	MT05	037a00	270570	Glacier National Park, MT	48°30'37"	113°59'44"	Jun 3, 1980
55	NC03	049a00	340320	Lewiston, North Carolina	36°07'40"	77°10'30"	Oct 31, 1978
56	NC25	050a00	342500	Coweeta, North Carolina	35°03'38"	83°25'50"	Jul 5, 1978
57	NC34	051a00	343460	Piedmont Station, NC	35°41'48"	80°37'22"	Oct 17, 1978
58	NC35	052a00	343560	Clinton Station, NC	35°01'26"	78°16'45"	Oct 24, 1978
59	NC36	360a00	343600	Jordan Creek, NC	34°58'16"	79°31'41"	Oct 18, 1983
60	NC41	053a02	344160	Finley (A), NC	35°43'43"	78°40'52"	Oct 3, 1978
60	NC41	053a03	344160	Finley (A), NC	35°43'43"	78°40'52"	Oct 3, 1978
60	NC41	053a	344160	Finley (A), NC (composited sites 053a02+053a03)	35°43'43"	78°40'52"	Oct 3, 1978
61	ND07	062a00	350700	Teddy Roosevelt National Park, North Dakota	47°36'09"	103°15'54"	May 5, 1981
61	ND07	062a01	350700	Teddy Roosevelt National Park, North Dakota	47°36'09"	103°15'54"	May 5, 1981
61	ND07	062a	350700	Teddy Roosevelt NP, ND (composited 062a00 and 062a01)	47°36'09"	103°15'54"	May 5, 1981
62	ND08	361a00	350880	Icelandic, North Dakota	48°46'57"	97°45'15"	Oct 25, 1983
63	ND11	362a00	351180	Woodworth, North Dakota	47°07'22"	99°14'02"	Nov 29, 1983
64	NE15	038a00	281520	Mead, Nebraska	41°09'11"	96°29'34"	Jul 25, 1978
64	NE15	038a01	281520	Mead, Nebraska	41°09'11"	96°29'34"	Jul 25, 1978
64	NE15	038a	281520	Mead, NE (composited from sites 038a00 and 038a01)	41°09'11"	96°29'34"	Jul 25, 1978
65	NH02	039a00	300240	Hubbard Brook, NH	43°56'35"	71°42'12"	Jul 25, 1978
66	NJ99	285a00	312981	Washington Crossing, NJ	40°18'54"	74°51'17"	Aug 4, 1981
67	NM09	280a00	320980	CUBA, New Mexico	36°02'27"	106°58'17"	Feb 3, 1982
68	NY08	040a00	330860	Aurora, New York	42°44'02"	76°39'35"	Apr 17, 1979
69	NY10	041a00	331000	Chautauqua, New York	42°17'58"	79°23'47"	Jun 10, 1980
70	NY12	042a00	331220	Knobit, New York	42°22'41"	73°30'10"	Jan 2, 1980
71	NY51	045a00	335140	Stilwell Lake, New York	41°21'00"	74°02'22"	Jun 26, 1979

Table 1.--National Trends Network stations included in 1983 calendar year annual summary report--Continued

Map ID number	CAL number	ADS number	NADP network number	Station name	Latitude	Longitude	Starting operation date
72	NY52	046a00	335240	Bennett Bridge, New York	43°31'34"	75°56'50"	Jun 10, 1980
73	NY65	047a00	336500	Jasper, New York	42°06'22"	77°32'08"	Feb 19, 1980
74	NY68	359a00	336840	Biscuit Brook, New York	41°59'39"	74°30'13"	Oct 11, 1983
75	NY99	358a00	335141	West Point, New York	41°21'03"	74°02'54"	Sep 6, 1983
76	OH17	055a00	361760	Delaware, Ohio	40°21'19"	83°03'58"	Oct 3, 1978
77	OH49	056a00	364900	Caldwell, Ohio	39°47'34"	81°31'52"	Sep 26, 1978
78	OH71	058a00	367160	Wooster, Ohio	40°46'48"	81°55'31"	Sep 26, 1978
79	OK00	363a00	370060	Salt Plains National Wildlife Refuge, OK	36°48'08"	98°12'37"	Dec 13, 1983
80	OK17	364a00	371740	Great Plains Apiaries, OK	34°58'48"	97°31'16"	Mar 29, 1983
81	OR09	367a00	380980	Silver Lake Ranger Station, Oregon	43°07'22"	121°03'28"	Aug 23, 1983
82	OR10	061a00	381020	H.J. Andrews, Oregon	44°13'23"	122°14'32"	May 13, 1980
83	OR11	027a00	381120	Vines Hill, Oregon	43°53'57"	117°25'37"	Jul 15, 1980
84	OR97	366a00	380202	Hyslop, Oregon	44°38'04"	123°11'24"	Apr 26, 1983
84	OR99	060a00	380201	Schmidt Farm, Oregon	44°37'35"	123°12'50"	Dec 26, 1979
84	OR97 plus OR99			Composited from sites 060a00 and 366a00	44°38'	123°12'	Dec 26, 1979
85	PA15	065b00	391520	Penn State NTN, PA	40°47'18"	77°56'47"	Jun 7, 1983
85	15PA	065c00	391521	Penn State NTN-2, PA	40°47'18"	77°56'47"	Oct 4, 1983
86	PA29	063a00	392940	Kane, Pennsylvania	41°35'52"	78°46'04"	Jul 18, 1978
87	PA42	064a00	394200	Leading Ridge, PA	40°39'32"	77°56'10"	Apr 25, 1979
88	PA72	371a00	397220	Milford, Pennsylvania	41°19'39"	74°49'13"	Dec 27, 1983
89	SD00	067a00	430060	Huron, South Dakota	44°23'02"	98°13'14"	Apr 30, 1980
90	SD08	373a00	430880	Cottonwood, South Dakota	43°56'57"	101°51'30"	Oct 11, 1983
91	SD99	372a00	430061	Huron Well Field, SD	44°21'18"	98°17'38"	Nov 29, 1983
92	TN00	171a00	440040	Walker Branch Watershed, Tennessee	35°57'41"	84°17'14"	Mar 11, 1980
93	TN11	028a00	441190	Elkmont, Tennessee	35°39'52"	83°35'25"	Aug 12, 1980
94	TX04	070a00	450425	K-Bar, Texas	29°18'07"	103°10'38"	Apr 10, 1980
95	TX38	254a00	453800	Forest Seed Center, Texas	31°33'38"	94°51'39"	Aug 18, 1981
96	TX56	378a00	455640	LBJ National Grasslands, Texas	33°23'30"	97°38'23"	Sep 20, 1983
97	UT01	357a00	460120	Logan, Utah	41°39'30"	111°53'49"	Dec 6, 1983
98	UT02	069a00	460280	Cedar Mountain, Utah	39°10'15"	110°37'05"	May 11, 1981
99	VA28	250a01	482890	Big Meadows, Virginia	38°30'51"	78°25'45"	May 12, 1981
100	VT01	249a00	470100	Bennington, Vermont	42°52'34"	73°09'48"	Apr 28, 1981
101	WA14	074a00	491410	Olympic National Park, WA	47°51'36"	123°55'57"	May 20, 1980
102	WI28	283a00	512800	Lake Dubay, Wisconsin	44°39'53"	89°39'08"	Jun 29, 1982
103	WI36	076a00	513640	Trout Lake, Wisconsin	46°03'09"	89°39'11"	Jan 22, 1980
104	WI37	077a00	513700	Spooner, Wisconsin	45°49'21"	91°52'30"	Jun 3, 1980
105	WV04	379a00	500460	Babcock State Park, WV	37°58'47"	80°56'59"	Sep 6, 1983
106	WV18	075a00	501860	Parsons, West Virginia	39°05'23"	79°39'44"	Jul 5, 1978
107	WY06	284a00	520680	Pinedale, Wyoming	42°55'44"	109°47'12"	Jan 26, 1982
108	WY08	078a00	520860	Yellowstone National Park, Wyoming	44°55'02"	110°25'13"	Jun 5, 1980
109	WY99	255a00	520820	Newcastle, Wyoming	43°52'24"	104°11'32"	Aug 11, 1981

Precipitation-chemistry Data

Criteria used to determine which data from ADS qualify for data base for this study are based on the following guidelines:

1. SAMPLE-START DATE AND SAMPLE-END DATE (beginning and ending dates for a composited sample)

   Composited samples qualify if collected between 12/28/82 and 01/03/84. In a few instances, when either the beginning sampling period or the ending sampling period extended beyond 7 days, the period used in the 1983 summary could have had a SAMPLE-START DATE as early as 12/21/82 and a SAMPLE-END DATE as late as 1/10/84.

2. QC-FLAG (quality-control indicator)

   Only those samples that have a blank quality-control indicator field qualify. A nonblank field such as a "Q" indicates that the sample is a quality- assurance sample and that the analytical results cannot be used to describe precipitation quality.

3. ACTUAL-SAMPLE-PERIOD (actual sampling interval)

   Samples qualify if sampling intervals are less than 28 days. Most of the samples had 7-day intervals; less than 2 percent of the samples had sampling intervals longer than 8 days.

4. PRECIP-OCCUR (indicates whether precipitation occurred and whether the quantity of precipitation is available)

   Precipitation data coded with a "M" or "Z" qualify. The code "M" indicates that precipitation occurred and quantity is available. The code "Z" indicates that no precipitation occurred during the sampling interval.

5. DEPOSITION-TYPE (indicates type of atmospheric-deposition sample)

   Only those precipitation data coded with a "W" (indicating wet deposition) or those coded with a "N" (indicating no precipitation and no system blank) qualify. Bulk or undefined samples do not qualify.

6. SAMPLE-QUANTITY (indicates amount of precipitation)

   Only those precipitation data coded with a non-missing RAIN-GAGE depth or a non-missing SAMPLE-VOLUME qualify. RAIN-GAGE depth is computed from the weight of precipitation that collects in the rain gage. If the rain gage is malfunctioning, SAMPLE-VOLUME (precipitation quantity) may be obtained from the weight of precipitation collected in the wet-deposition sampling bucket.

7. REASON-NO-COMPONENT

   Precipitation data that have a blank field or are coded with an "N" qualify. A blank field indicates that at least one physical or chemical determination was reported; an "N" indicates that no precipitation occurred and that no analysis is available.

8. NOTE-CODES (indicating the performance of the site observer or equipment, or additional information concerning whether the sample or analysis qualify)

   Chemical samples and analyses did not qualify for entry into the data base if they contained any of the following NOTE-CODES:

   A01 -- Trace precipitation and dilution was unwarranted.
   A07 -- No information was available for this collection period.
   A10 -- No sample or no data available. Data excluded from report for various reasons, including extreme contamination, lack of conformation to a definable sample, leakage, or loss in the mail.
   A11 -- Sampler malfunction.
   A36 -- Trace of precipitation; no analysis.
   A37 -- Quality control sample.
   B03 -- Sample contains floating matter
   B44 -- Bird droppings present.
   B45 -- Sample cloudy or discolored.
   B46 -- Unusual amounts of soot or dirt for this site.
   B48 -- Collector did not operate properly and did not sample all precipitation events during entire sample period.

9. RESULT-NOTE (contains information concerning results for each analysis)

   Precipitation data qualify if the field is coded with a blank. If field is coded with an "S," the results are suspect; if coded with an "I," comment concerning this analysis is given in the sample record. All 1983 NTN data were coded with a blank.

10. RESULT-FLAG (contains additional information concerning reported values)

    Precipitation data qualify if the fields were coded with a blank or "<" (indicating value below detection limit).

Data-collection Sites

As part of the approach for determining spatial variations in the chemical quality of precipitation, maps were prepared to show annual mean volume-weighted chemical concentrations and loads on a national basis. To provide a consistent portrayal of these annual concentrations and loads on a national basis, site data must be available throughout most of the year. A complete record of weekly data is not available at some sites for such reasons as equipment malfunction, sample contamination, and shipping problems. For this report, four criteria were used to determine whether there were sufficient data at a site to include the data in the maps. These criteria are applied to each site and are similar to criteria used in the National Atmospheric Deposition Program 1982 Annual Summary Report (National Atmospheric Deposition Program Subcommitte Number 3, Data Management and Analysis, 1985).

The four criteria are:

1. PERCENT OF SUMMARY PERIOD WITH PRECIPITATION-QUANTITY MEASUREMENTS -- Precipitation quantity from either the rain gage or wet bucket of the wet/dry deposition collector must be available for at least 85 percent of the 1983 calendar-year summary period.

2. PERCENT OF SUMMARY PERIOD WITH SAMPLES THAT QUALIFY FOR THE DATA BASE -- Samples must be available for at least 65 percent of the summary period.

3. PERCENT OF TOTAL MEASURED PRECIPITATION QUANTITY WITH SAMPLES THAT QUALIFY FOR THE DATA BASE -- The total quantity of precipitation corresponding to the samples qualifying for the data base must be at least 65 percent of the measured precipitation quantity that occurred during the sampling period.

4. PERCENT OF TOTAL MEASURED PRECIPITATION IN RAINGAGE THAT WAS COLLECTED IN WET-DEPOSITION BUCKET -- When precipitation quantities are available for both the rain gage and the wet-sample bucket, the total precipitation quantity collected for qualifying samples in the wet bucket during the summary period must be at least 75 percent of the total precipitation quantity collected in the rain gage.

Each site that met all four of the above criteria was included in the data base. About 49 percent of the NTN sites (55 sites) met all four criteria. About 27 percent of the sites did not meet criterion 1, 48 percent did not meet criterion 2, 32 percent did not meet criterion 3, and 8 percent did not meet criterion 4. Percentages for each criterion are listed in table 2. NTN sites that met or exceeded the criteria are denoted by symbol "*" in the table.

In addition to the NTN sites, sites from the Canadian Network for Sampling Acid Precipitation (CANSAP) were used to supplement data for the maps of the United States. The CANSAP data were collected on a monthly basis instead of weekly, and the analyses were made for many of the same constituents analyzed by NTN. On the basis of the criteria listed above, 18 of the 28 CANSAP sites had sufficient data in 1983 to be included in the maps. The Canadian sites have site-selection protocol that differ from the protocol established for NTN sites. The CANSAP sites are commonly located at airports where upper-air meteorology stations are established, and they are also located near cities where spatial changes in precipitation chemistry are large over relatively short distances (D. S. Bigelow, National Atmospheric Deposition Program Coordinator's Office, oral commun., January 1986). The close proximity of area- or point-source emissions from airports and cities potentially influences the quality of wet deposition at CANSAP sites.

Table 2.--Summary of operating statistics for determining which National Trends Network sites will be included in national maps

[Map ID number = numbers used to identify station locations in figure 1; CAL number = National Atmospheric Deposition Program central analytical laboratory number; "*" indicates those sites meeting criteria for inclusion in maps; characters in parenthesis list the Atmospheric Deposition System number for those sites that had changes in site protocol during 1983 (for example, changing the brand of wet/dry deposition collector); "--" indicates no data; PPT = precipitation]

Map ID number		CAL number	Percent of summary period with PPT measurements [Criterion is 85 percent]	Percent of summary period with chemical samples [Criterion is 65 percent]	Percent of total measured PPT with chemical samples [Criterion is 65 percent]	Percent of total measured PPT in the raingage that was collected in the wet-sample bucket [Criterion is 75 percent]
1		AL10	33.7	33.7	100.0	99.6
2	*	AR02	100.0	73.6	79.0	98.5
3		AR03	1.1	0	0	--
4	*	AR27	98.1	83.0	92.1	87.5
5	*	AZ03	100.0	80.9	90.9	90.3
6	*	AZ06	100.0	83.0	91.6	93.7
7		AZ99	101.9	59.8	70.1	97.8
8	*	CA42	100.0	81.1	94.5	91.5
9	*	CA45	100.0	92.4	86.9	92.4
10	*	CA75	98.1	73.6	86.1	101.2
11	*	CA88	100.0	77.4	89.9	97.3
12		CA98	41.5	28.3	82.3	87.7
13	*	CA99	100.0	81.1	87.0	100.2
14		CO00 (160a02)	79.2	54.7	75.5	93.2
14		CO00 (160a03)	20.8	7.5	33.4	54.1
14		CO00 (160a02+160a03)	100.0	62.3	65.7	88.3
15		CO01	24.5	13.2	37.1	95.9
16	*	CO15	100.0	77.4	77.0	96.8
17		CO21	100.0	60.4	46.0	91.5
18	*	CO22	100.0	75.5	87.1	89.5
19		CO99	100.0	58.5	56.5	93.6
20	*	FL03	98.1	74.7	80.3	93.8
21	*	FL11	100.0	71.7	71.4	95.0
22		FL41	35.8	8.9	30.3	100.4
23		GA41	100.0	64.2	76.7	95.4
24		GA50	24.5	20.8	97.0	90.2
25		ID03	100.0	50.9	57.8	90.5
26	*	ID04	100.3	69.8	67.9	97.7
27		IL11	100.0	47.2	51.3	95.7
27		11IL	28.3	13.2	34.4	82.6
28	*	IL18	100.0	73.6	94.9	97.9
29		IL19	101.9	43.7	33.1	101.9
30		IL47	100.0	69.8	61.7	105.2
31	*	IL63	100.0	81.1	91.7	88.8
32		IN20	36.1	20.8	74.6	65.6
33	*	KS31	100.0	81.1	98.0	97.3
34		KY03	9.4	7.5	99.0	98.3

Table 2.--Summary of operating statistics for determining which National Trends Network sites will be included in national maps--Continued

Map Id number		CAL number	Percent of summary period with PPT measurements [Criterion is 85 percent]	Percent of summary period with chemical samples [Criterion is 65 percent]	Percent of total measured PPT with chemical samples [Criterion is 65 percent]	Percent of total measured PPT in the raingage that was collected in the wet-sample bucket [Criterion is 75 percent]
35		KY22	32.1	26.4	92.7	94.8
36		KY35	34.0	24.5	85.1	97.9
37		LA12	98.1	49.3	55.0	99.5
38		LA30	92.4	56.1	58.2	98.6
39		MA08	100.0	47.2	36.5	93.2
40	*	MA13	100.0	79.2	82.7	96.7
41		MD13	81.1	71.7	90.5	97.0
42	*	ME02	86.8	79.2	94.3	95.0
43		ME09	100.0	52.8	60.3	89.4
44		ME98	98.4	58.5	47.7	92.8
45		MI09	100.0	60.6	65.6	98.0
46		MI26	101.3	60.4	66.3	84.5
47		MI53 (033a00)	73.6	66.0	92.6	91.1
47		MI53 (033a01)	26.4	24.5	91.4	79.6
47	*	MI53 (033a00+033a01)	100.0	90.6	92.3	87.8
48	*	MN16	100.0	66.0	71.7	93.6
49	*	MN18	100.0	79.2	74.2	82.9
50		MN23	20.8	1.9	17.5	91.2
51		MN27	99.5	60.4	63.9	94.5
52		MO03	100.0	62.3	55.0	95.4
53	*	MO05	100.0	75.5	91.3	96.1
54		MT05	98.1	47.2	34.9	85.7
55	*	NC03	100.0	73.9	67.2	98.5
56	*	NC25	100.0	73.6	86.5	99.5
57	*	NC34	100.0	77.4	76.3	96.3
58	*	NC35	98.1	77.4	88.4	97.6
59		NC36	20.8	17.0	96.9	99.1
60		NC41 (053a02)	37.7	22.6	41.2	86.3
60		NC41 (053a03)	64.2	56.6	84.2	95.1
60	*	NC41 (053a02+053a03)	100.0	79.2	66.1	93.1
61		ND07 (062a00)	66.0	47.4	90.7	96.3
61		ND07 (062a01)	34.0	18.9	54.8	85.6
61	*	ND07 (062a00+062a01)	100.0	66.3	85.3	95.6
62		ND08	18.9	5.7	9.7	38.9
63		ND11	9.4	0	0	--
64		NE15 (038a00)	67.6	60.1	94.0	100.3
64		NE15 (038a01)	32.1	18.9	85.1	94.5
64	*	NE15 (038a00+038a01)	99.7	79.0	91.3	98.7
65	*	NH02	100.0	69.8	65.5	97.1
66	*	NJ99	100.0	70.4	80.2	97.1
67	*	NM09	100.0	75.5	83.0	90.9

Table 2.--Summary of operating statistics for determining which National Trends Network sites will be included in national maps--Continued

Map ID number	CAL number	Percent of summary period with PPT measurements [Criterion is 85 percent]	Percent of summary period with chemical samples [Criterion is 65 percent]	Percent of total measured PPT with chemical samples [Criterion is 65 percent]	Percent of total measured PPT in the raingage that was collected in the wet-sample bucket [Criterion is 75 percent]
68	* NY08	99.7	80.9	90.4	91.2
69	* NY10	100.0	75.5	82.2	97.0
70	* NY12	100.0	88.9	94.5	93.8
71	* NY51	100.0	81.1	86.5	93.7
72	* NY52	98.1	88.9	88.0	94.2
73	* NY65	100.0	86.8	96.2	95.8
74	NY68	22.6	13.5	70.8	81.4
75	NY99	30.2	30.2	100.0	96.2
76	* OH17	100.0	77.4	83.5	100.2
77	OH49	100.0	66.3	56.2	99.6
78	* OH71	100.0	67.9	70.5	98.9
79	OK00	5.7	3.8	50.0	--
80	OK17	74.7	62.3	93.0	101.6
81	OR09	35.8	22.6	30.2	77.9
82	OR10	100.0	64.4	59.4	95.8
83	* OR11	100.0	74.4	81.0	95.9
84	OR97	67.9	56.6	94.9	91.8
84	OR99	32.1	28.3	95.2	--
84	* OR97 plus OR99	100.0	84.9	95.0	91.8
85	PA15	56.6	43.4	80.7	98.0
85	15PA	24.5	20.8	78.9	94.6
86	PA29	100.0	54.7	61.3	94.8
87	* PA42	100.0	92.4	96.0	90.3
88	PA72	1.9	1.9	100.0	101.2
89	SD00	73.5	58.5	91.2	82.2
90	SD08	22.6	13.2	60.9	80.9
91	SD99	9.4	0	0	--
92	* TN00	100.0	83.0	80.0	102.0
93	TN11	100.0	63.9	69.1	96.8
94	* TX04	100.0	83.0	88.2	101.5
95	* TX38	100.0	81.1	71.8	99.1
96	TX56	28.3	22.6	99.9	93.4
97	UT01	7.5	0	0	--
98	* UT02	100.0	75.2	72.2	82.4
99	VA28	100.0	45.3	56.8	100.2
100	* VT01	100.0	73.6	77.3	92.0
101	* WA14	100.0	80.6	80.2	97.0
102	* WI28	99.5	84.4	90.0	95.5
103	* WI36	100.0	66.0	76.1	96.4
104	* WI37	100.0	66.0	74.3	92.8
105	WV04	32.1	18.9	48.2	87.4
106	* WV18	100.0	86.8	80.8	91.2
107	WY06	100.0	62.3	61.5	72.2
108	WY08	100.0	37.7	38.0	105.0
109	* WY99	100.0	86.5	81.9	84.8

REGIONAL DISTRIBUTION AND VARIABILITY OF PRECIPITATION CHEMISTRY BY INDIVIDUAL CONSTITUENT

Kriging Interpolation Technique

Maps that depict the spatial distribution of chemical concentrations and loads in precipitation across the United States show wide variations for most chemical concentrations and precipitation quantities. Lines of equal chemical concentrations and loads depicted on these maps may be used (1) to identify areas of large chemical concentrations or loads and (2) to compare the quality of precipitation to the geographic distributions of such variables as population density, energy consumption, and wind patterns in order to discover possible relations between sources and the resulting quality.

Locations for lines of equal concentration could be determined by two types of methods. With a subjective contouring method, the individual scribe interprets line placement on the basis of points of observed data. A different method would use an objective, mathematical approach, in which the lines are drawn on the basis of some feature of the observed data described mathematically. Shortcomings of the subjective method include (1) uncertainty over the amount of influence a single observed value should exert over adjacent observations of considerably different magnitude, (2) the tendency for convoluted or "bullseye" contours (that cannot be substantiated by the existing data) to result when equal influence is allowed for each data point, and (3) a lack of repeatability because of varying individual interpretations of the data in the subjective process.

After a consideration of the shortcomings of the subjective method, the objective mathematical approach was chosen because (1) an objective method could provide repeatable results, and (2) control could be exercised on the weight assigned to local observations so that regional patterns would not be unduly influenced by singular points. The major consideration for number 2 above is that if there is "noise" in the data (unwanted or unexplained variation in the observed values) along with a regional pattern, the noise should not have an excessive influence on the regional pattern. The objective method selected was Kriging, which bases estimates at unmeasured locations on the spatial autocorrelation in observed data. For this study, the spatial pattern of precipitation-chemistry results was a primary interest.

Kriging results provide a smoothing of the observed data and so describe the general regional pattern, but not the local details. Therefore, while direct comparison of lines of equal concentration (drawn from the Kriged data) to the observed data at specific points is unavoidable, the reader should remember that observed data on some maps may contain significant noise. Noise present in the data may cause specific observation values to appear not to support the placement of the lines which are drawn to reflect a regional (not local) data pattern.

This report will focus attention on the application of Kriging to precipitation data that meet the previously discussed criteria. However, some aspects of the Kriging theory should be addressed in order to understand better the maps that show regional patterns on a nationwide scale.

Theoretical aspects of Kriging are discussed in detail by Olea (1975). Two theoretical components of Kriging are the semi-variogram and drift. The semi-variogram is expressed as a function that describes the relation between variance of the observed values with respect to distance between observation sites. Drift is the spatial trend of the mean values for a variable over a region (for this study the region is the United States). Skrivan and Karlinger (1980) provide five functional forms for the semi-variogram. The forms are: (1) linear or parabolic or root, (2) spherical, (3) exponential, (4) Gaussian, and (5) De Wijsian. Drift and the semi-variogram are interrelated. If the drift is constant, the semi-variogram is the variance of the difference between numerical values of the variables related to the distance between observation sites. If drift is not a constant, the semi-variogram is the variance of the differences between residuals of the variables off the drift as related to distance between observation sites (Skrivan and Karlinger, 1980).

Because the semi-variogram for this project is a function only of the distance between sites and not a function of direction, the semi-variogram was considered to be isotropic. Anisotropy could not be accounted for because the data (number of sites) were not sufficiently dense to distinguish any regional variations or anistrophy in the semi-variogram. About 80 percent of all comparisons between sites (used to calculate the semi-variogram) were oriented in an east-west direction; thus, directional differences in the semi-variogram between north-south and east-west could not be determined.

Skrivan and Karlinger (1980) point out that Kriging (1) provides unbiased estimates of variables in areas where the available data show spatial autocorrelation, and (2) minimizes the variance of the estimated values. These points are applicable if the true drift and semi-variogram are known and used. However, because the drift and semi-variogram are estimated from the data, the claims of unbiased estimates and minimum variance cannot be substantiated for these results (although use of any other mathematical scheme would have the same limitations).

Kriging programs used in this study made use of a neighborhood approach for estimating an interpolation value. The neighborhood approach results in the estimated value being calculated from a linear combination of the closest two observation locations per quadrant. Thus an estimated value results from a linear combination of (at most) eight observation points. An examination of figure 2a shows more sites in the northeastern United States than in the rest of the country. Neighborhoods for many sites in the northeastern United States are in a rather homogeneous climatological-physiographic region close to the location being estimated, whereas neighborhoods in the western United States often cover vast areas that are not climatologically or physiographically homogeneous. Differences in climatological and physiographic features are partially reflected in the semi-variogram, which usually has much lower variance for sites that are closer together (such as in the eastern United States) and has higher variances for sites separated by greater distances. In calculating the estimated value, observation sites closer to the location of the interpolated value are given more weight than sites farther away.

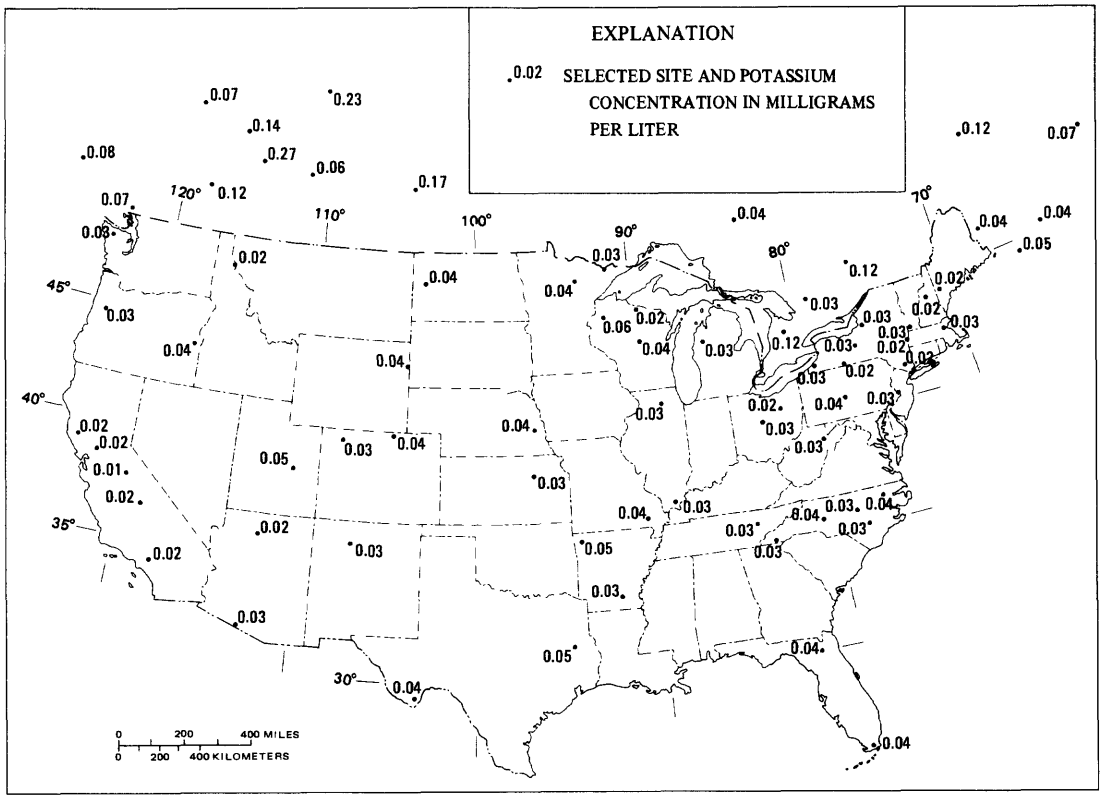


Figure 2a.--Volume-weighted constituent means in precipitation at National Trends Network sites and selected Canadian sites, 1983: Potassium concentrations.

Geographical areas with more sites that are close together and neighborhoods that encompass areas of similar climatological conditions and contaminant-source emissions will have lower variance for the estimated values. Although variance for estimated values will be higher in areas other than those previously mentioned, it is precisely in the areas with sparse data that Kriging provides an opportunity to estimate the values of missing data. Contouring the estimated values can then reveal an underlying pattern to the data that may not be obvious when only the observation points are examined. Pattern identification in the western United States is particularly noticeable for the large population centers in southern California and the Pacific Northwest, where man's activities may have considerable effect on the quality of precipitation.

Results of Analysis

Volume-weighted Chemical Concentration

Ten maps were prepared to show lines of equal annual mean volume-weighted chemical concentrations for 1983. Line intervals on the maps generally were selected to include the largest value possible for constructing a complete line. Because of the different ranges and magnitudes of chemical values, intervals vary considerably from map to map. Two of the ten maps have no lines, because within the United States the ranges of values for potassium (fig. 2a) and magnesium (fig. 2b) were not significantly different enough for spatial distribution comparisons. The other eight maps of chemical concentrations reveal some distinct patterns.

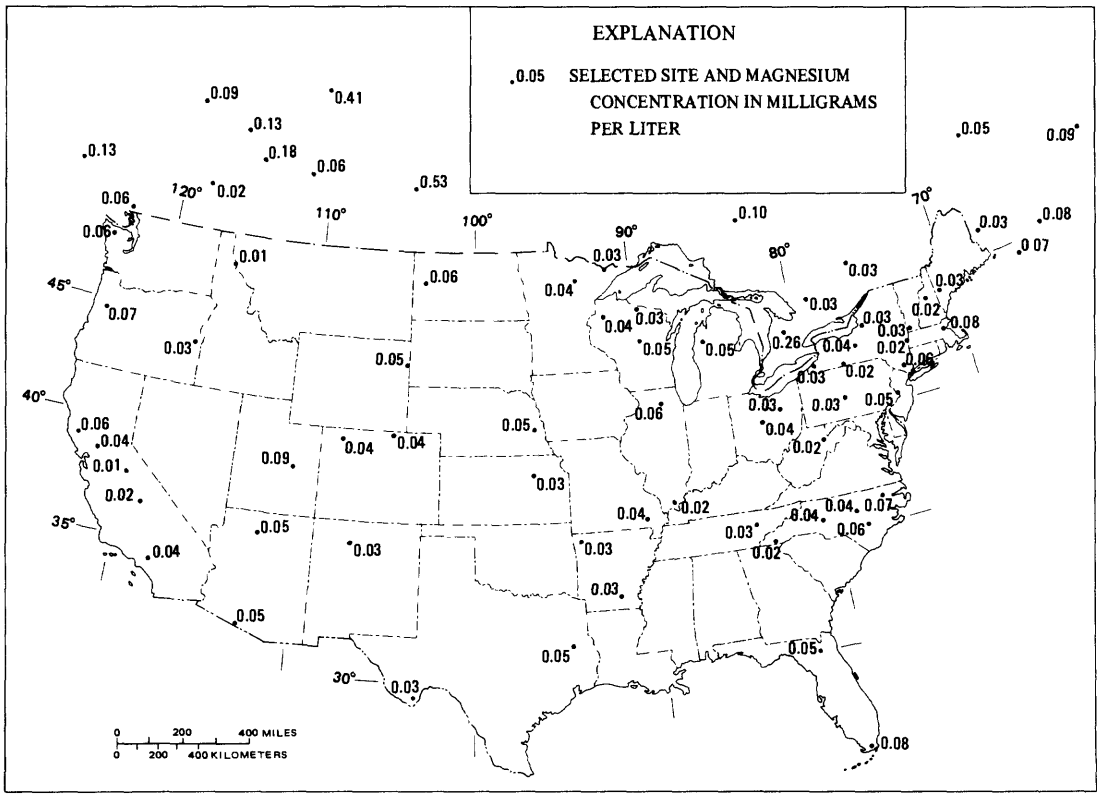


Figure 2b.--Volume-weighted constituent means in precipitation at National Trends Network sites and selected Canadian sites, 1983: Magnesium concentrations.

The pH map shows a marked difference between the western and eastern United States (fig. 2c). Lowest pH values are centered around the industrialized northeastern United States; pH values are higher elsewhere, especially to the south and west. Values become higher in a westerly direction. The pattern of pH lines coincides with the presence of large population and manufacturing centers coincident with the lowest pH values. A slight decrease in pH values also occurs in the densely populated areas of southern California. Concentrations of sulfate (fig. 2d) and nitrate (fig. 2e) exhibit patterns somewhat similar to that of pH. The similarity of the lines of equal concentrations and pH values suggests a strong association between the large concentrations of sulfate and nitrate with the low values of pH.

Lines of equal ammonium concentration (fig. 2f) are quite different from the lines of equal concentrations previously discussed. Largest ammonium-ion concentrations are centered much farther west than the large sulfate or nitrate concentrations. Relatively large (but not the largest) ammonium concentrations are centered around the Great Lakes region, which is also the location of large concentrations of sulfate and nitrate; this association suggests that ammonia is neutralizing some of the acidity (hydrogen ions) associated with the large sulfate and nitrate concentrations, according to the following reactions:

(1) Source of hydroxide ions

$$NH_3 + H_2O = NH_4^+ + \underline{OH}^-$$

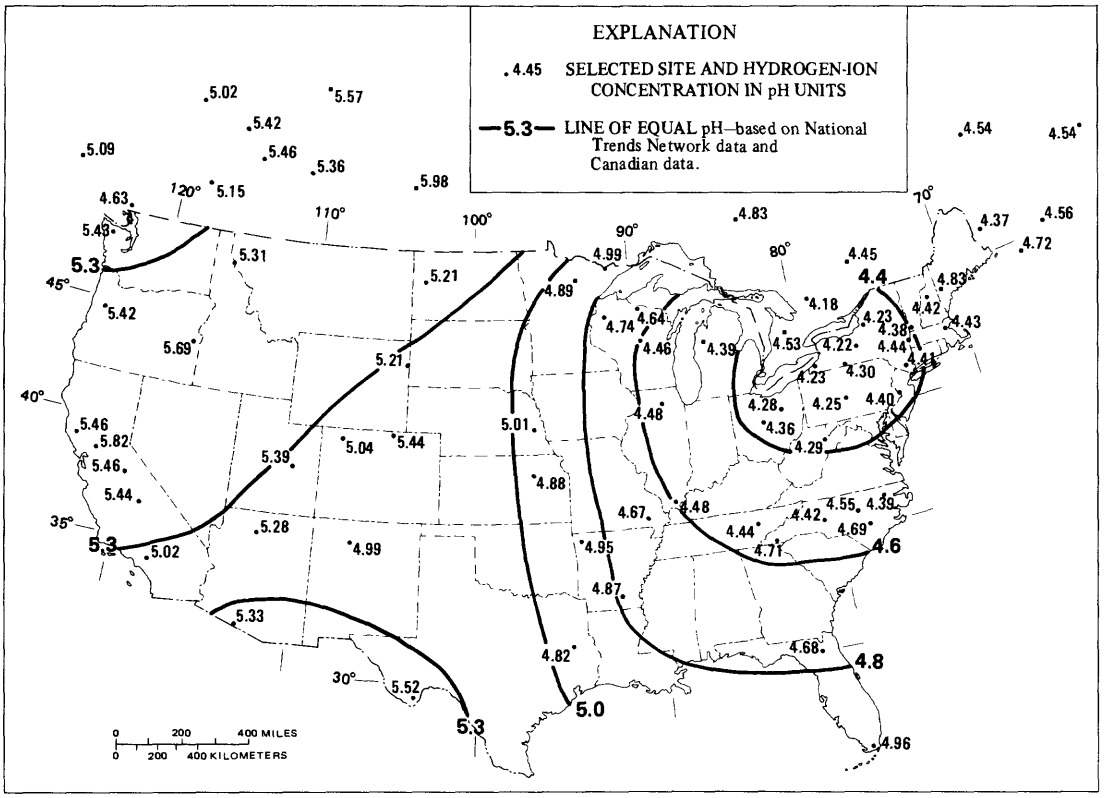


Figure 2c.--Volume-weighted constituent means in precipitation at National Trends Network sites and selected Canadian sites, 1983: Hydrogen-ion concentrations, in pH units.

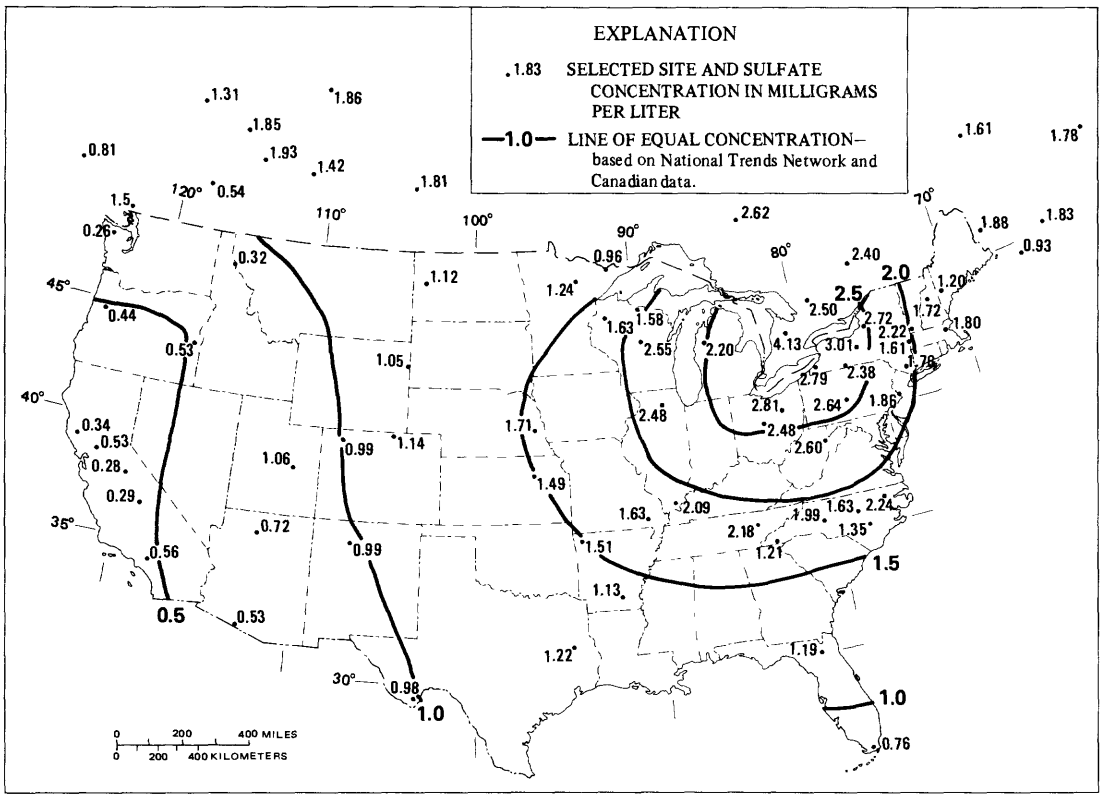


Figure 2d.--Volume-weighted constituent means in precipitation at National Trends Network sites and selected Canadian sites, 1983: Sulfate concentrations.

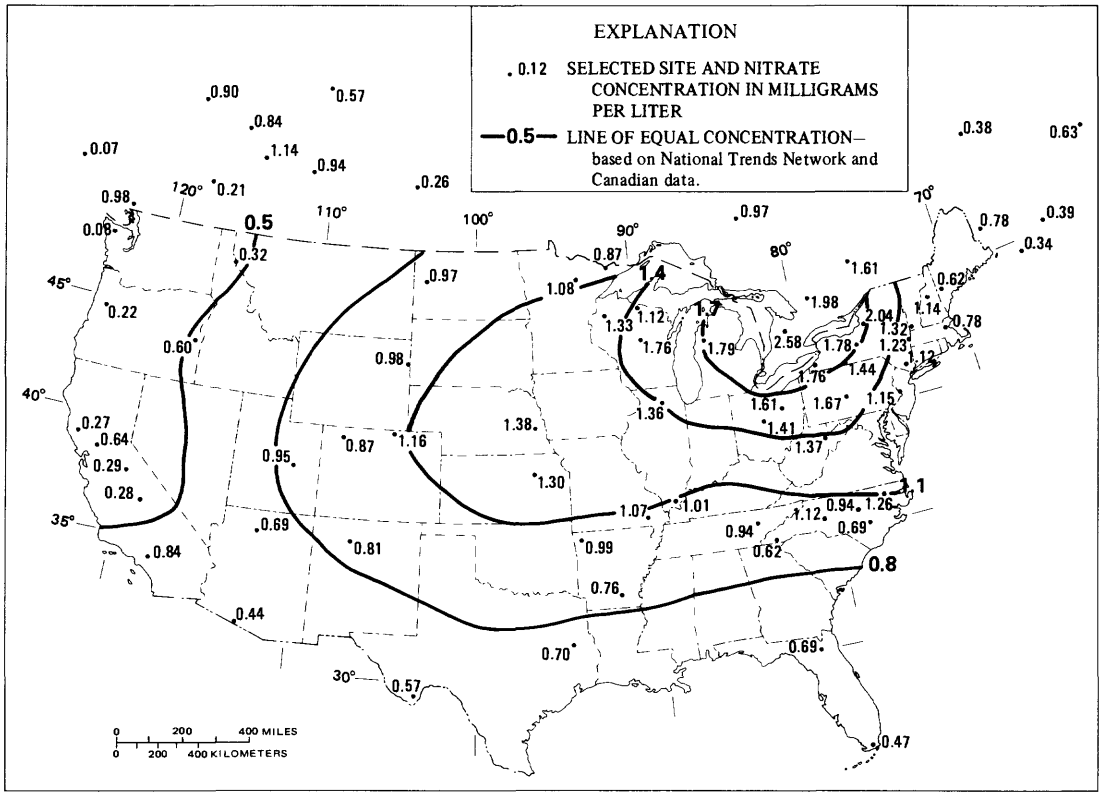


Figure 2e.--Volume-weighted constituent means in precipitation at National Trends Network sites and selected Canadian sites, 1983: Nitrate concentrations.

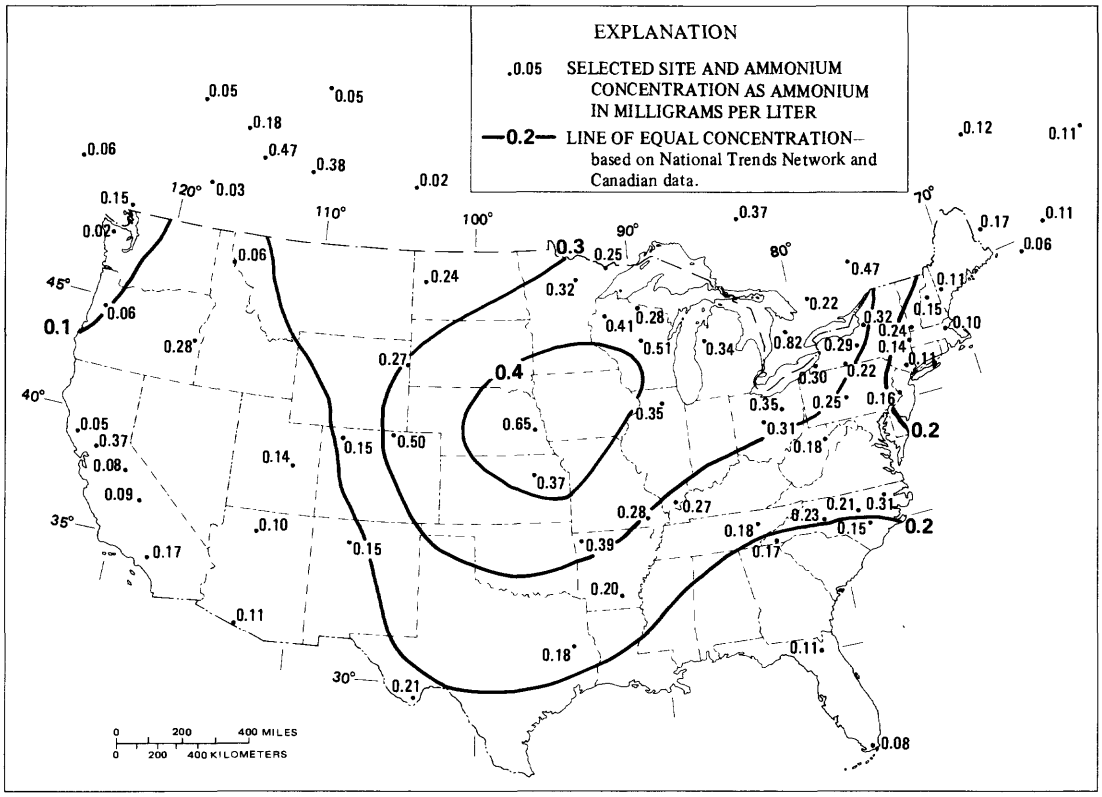


Figure 2f.--Volume-weighted constituent means in precipitation at National Trends Network sites and selected Canadian sites, 1983: Ammonium concentrations.

(2) Sources of hydrogen ions (acid rain)

$$HNO_3 = \underline{H}^+ + NO_3^-$$

$$H_2SO_4 = \underline{H}^+ + HSO_4^-$$

$$HSO_4^- = \underline{H}^+ + SO_4^{-2}$$

(3) Neutralizing reactions

$$OH^- + H^+ = H_2O \text{ (indirect)}$$

$$NH_3 + H^+ = NH_4^+ \text{ (direct)}$$

If ammonia is neutralizing some of the acidity, then, in the absence of the ammonia source in the Great Lakes Region, the pH of the precipitation in that region would be lower. The location of the 0.4-mg/L line for ammonium suggests that livestock, dairy, and agricultural activities supply much of the ammonia available to the atmosphere in that area. Major livestock and dairy activities in the United States are contained within the area outlined by the 0.4-mg/L line (U.S. Geological Survey, 1970). In addition, major agricultural activities could account for the supply of ammonia in the North Central States, but the abundance of commercially fertilized lands in the Southeast is inconsistent with the small ammonia concentrations in that region. Junge (1958) pointed out that the small ammonia concentrations in precipitation are associated with areas that have low soil pH, as in the Southeast. The loss of ammonia from soils starts at pH=6, with no observable escape below this value (Junge, 1958). In near neutral or alkali soils, as those in North Dakota, South Dakota, Utah, Idaho, Colorado, New Mexico, and Wyoming (U.S. Department of Agriculture, 1957), ammonia concentrations are generally larger. Livestock, dairy, and agricultural activities account for the supply of ammonia, but one factor that controls the release of ammonia to the atmosphere is the pH of the soil.

Annual mean volume-weighted specific conductance values (fig. 2g) show a pattern similar to those for pH, sulfate, and nitrate. Note that conductance lines do not show increases in the vicinity of either ocean, but instead seem to be most influenced by man's activities. Sodium concentrations (fig. 2h) show that ocean influence is dominant, as maximum concentrations are found along each coast. It is also notable that the smallest-valued line of equal concentration in the east (0.1 mg/L) encompasses an area with a relatively high usage of salt for road de-icing. The small sodium concentration in this area suggest that the NTN sites are in isolated areas, away from major roads and the potential effects of de-icing salts. Chloride concentrations (fig. 2i) have a pattern similar to the sodium pattern, but with a higher concentration gradient (in milligrams per liter). In terms of chemical equivalents per liter, the sodium and chloride gradients are quite similar.

Calcium-ion concentrations (fig. 2j) did not vary greatly across the United States, but a regional pattern was evident. The lines of equal calcium concenstration indicate that the largest concentrations occur in the plains states of the north-central United States. The larger calcium concentrations may be associated with wind-blown soils from this semi-arid region.

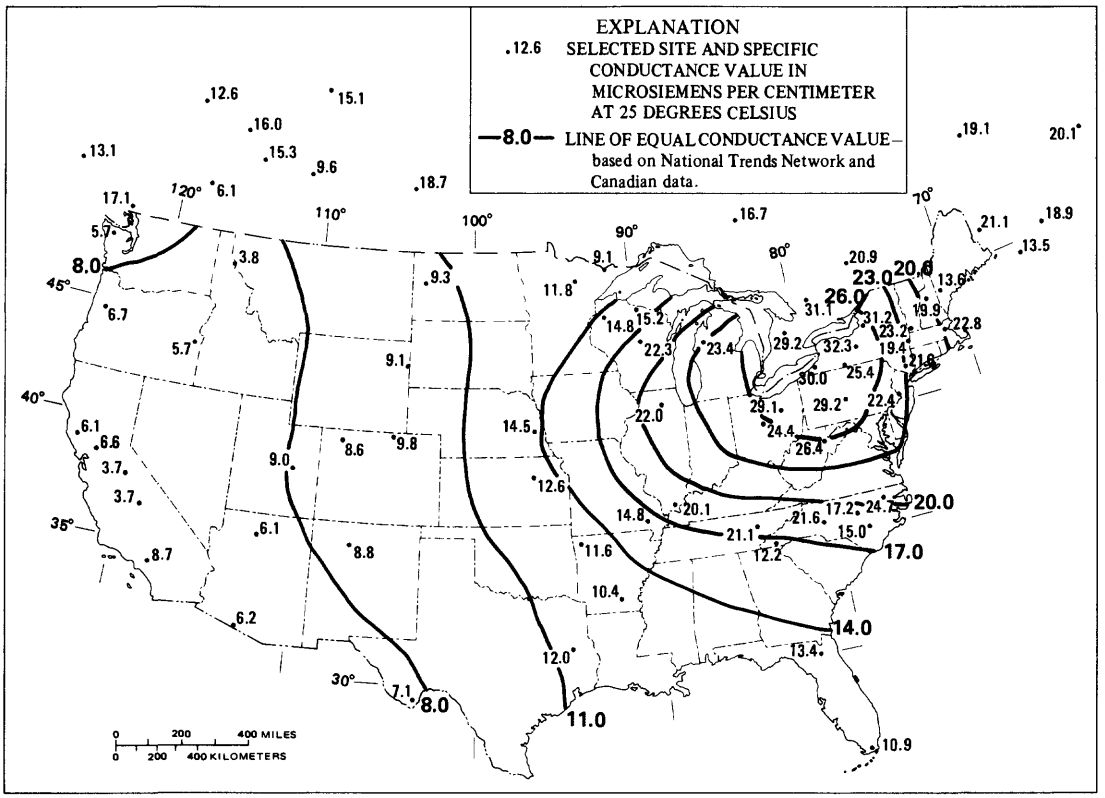


Figure 2g.--Volume-weighted constituent means in precipitation at National Trends Network sites and selected Canadian sites, 1983: Specific conductance values.

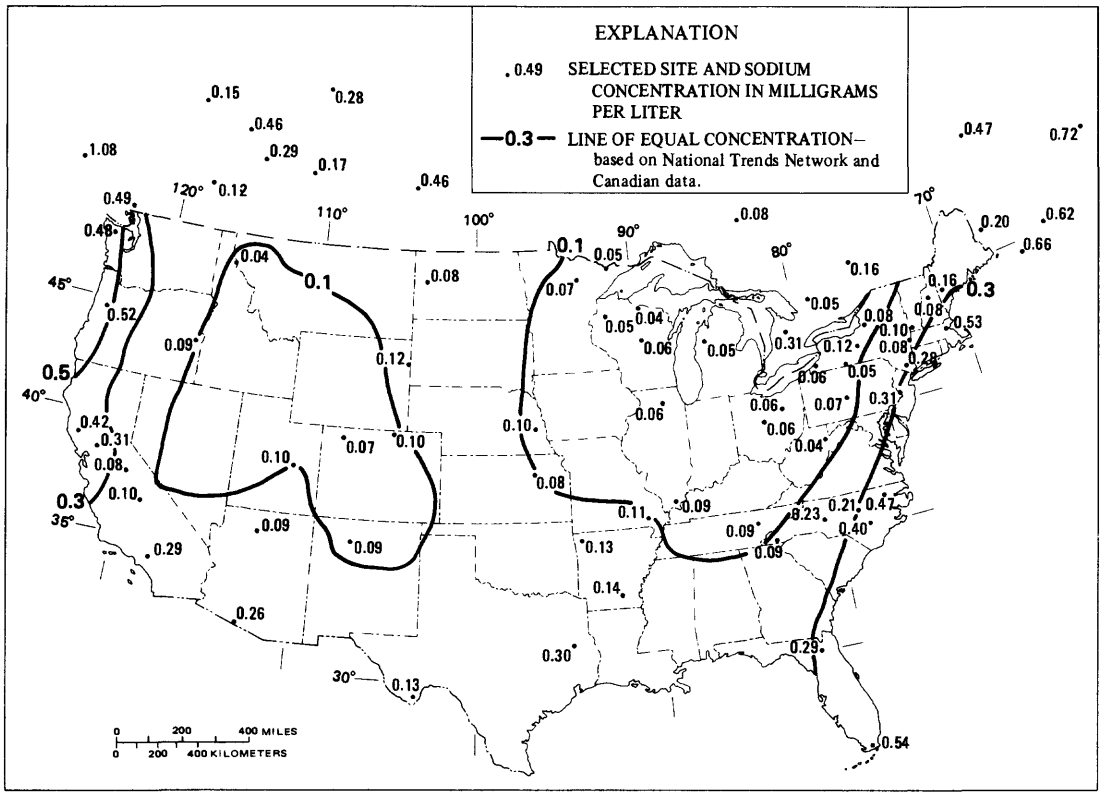


Figure 2h.--Volume-weighted constituent means in precipitation at National Trends Network sites and selected Canadian sites, 1983: Sodium concentrations.

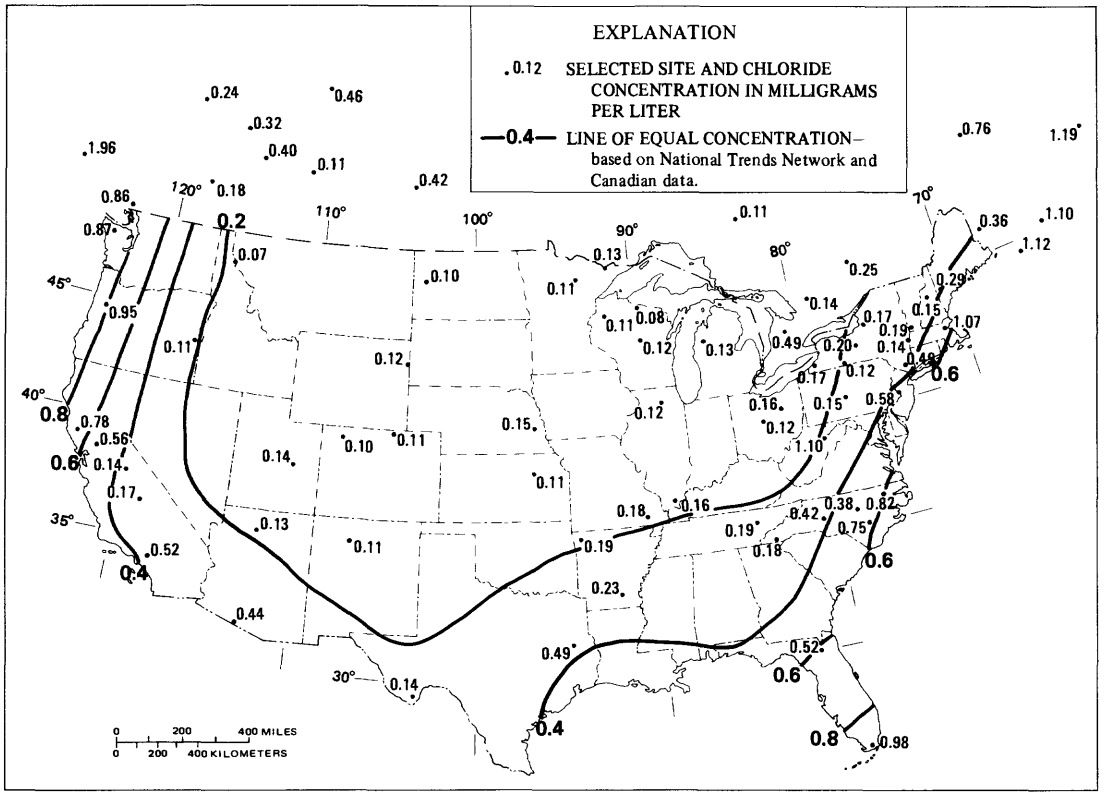


Figure 2i.--Volume-weighted constituent means in precipitation at National Trends Network sites and selected Canadian sites, 1983: Chloride concentrations.

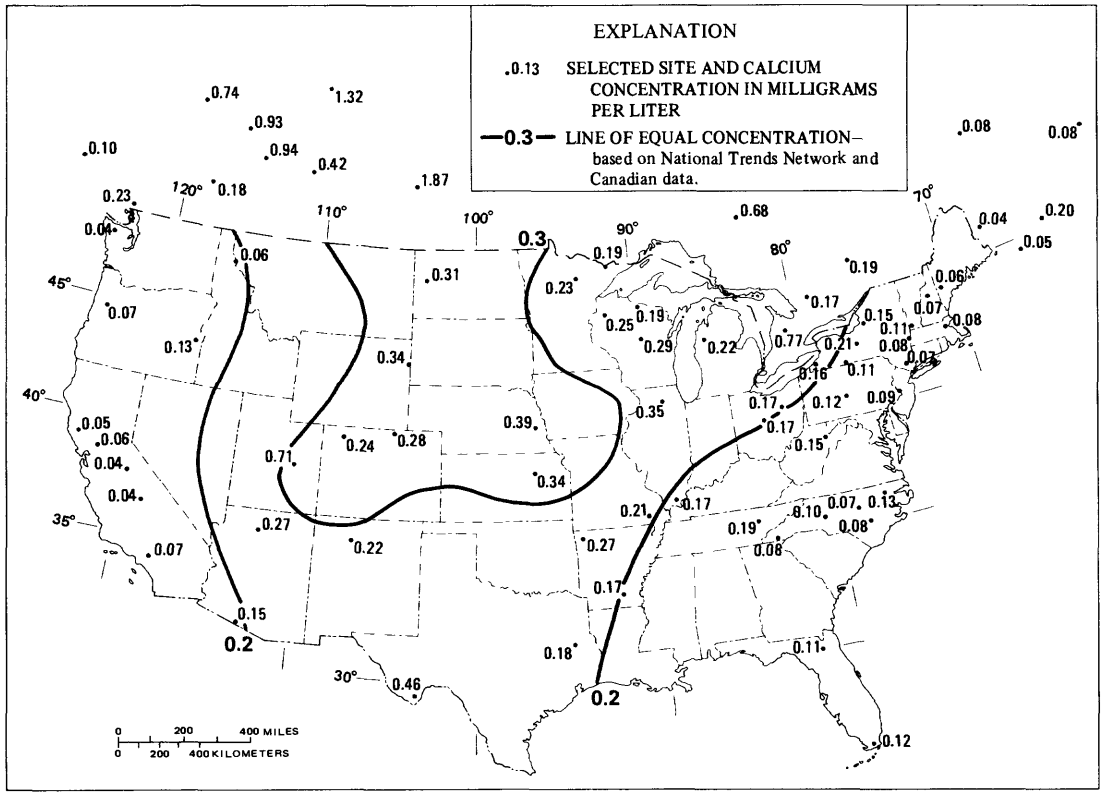


Figure 2j.--Volume-weighted constituent means in precipitation at National Trends Network sites and selected Canadian sites, 1983: Calcium concentrations.

Chemical-constituent Loads

Constituent loading maps incorporate influences of both chemical concentrations and precipitation quantities. The loading patterns are different from the concentration patterns. Maximum hydrogen-ion loads are located east of the smallest pH values, reflecting increasing precipitation quantities at sites closer to the Atlantic Ocean (fig. 3a). Loads of hydrogen ion decrease from east to west across the country, but a slight increase in loading occurs around the population centers of the Pacific Northwest and southern California. However, loadings in these western coastal areas are almost an order of magnitude below the largest values in the east. A similar pattern is apparent for sulfate load (fig. 3b) and nitrate load (fig. 3c). The largest loads for pH, sulfate, and nitrate encompass the same general geographic area. Loading for sulfate decreases from east to west, with a slight increase in the Pacific Northwest. Also, nitrate loads decrease from east to west, with a western coastal increase in southern California. Increased nitrate loading in that area is indicative of the large numbers of both people and cars. Both the sulfate- and nitrate-load maps show that the second largest line of equal concentration extends considerably to the west, encompassing many of the major industrial population centers of the eastern United States.

Of the loads mapped, ammonium-ion loads differ from the other three previously discussed. The load map (fig. 3d) is quite similar to the ammonium-ion concentration map, with a slight shift to the east. One interesting difference between the concentration and load maps is that the loads are somewhat larger in the Pacific Southwest. Larger loads in the Pacific Southwest reflect a combination of intensive agricultural activities in California and increasing precipitation quantities near the ocean (U.S. Geological Survey, 1970).

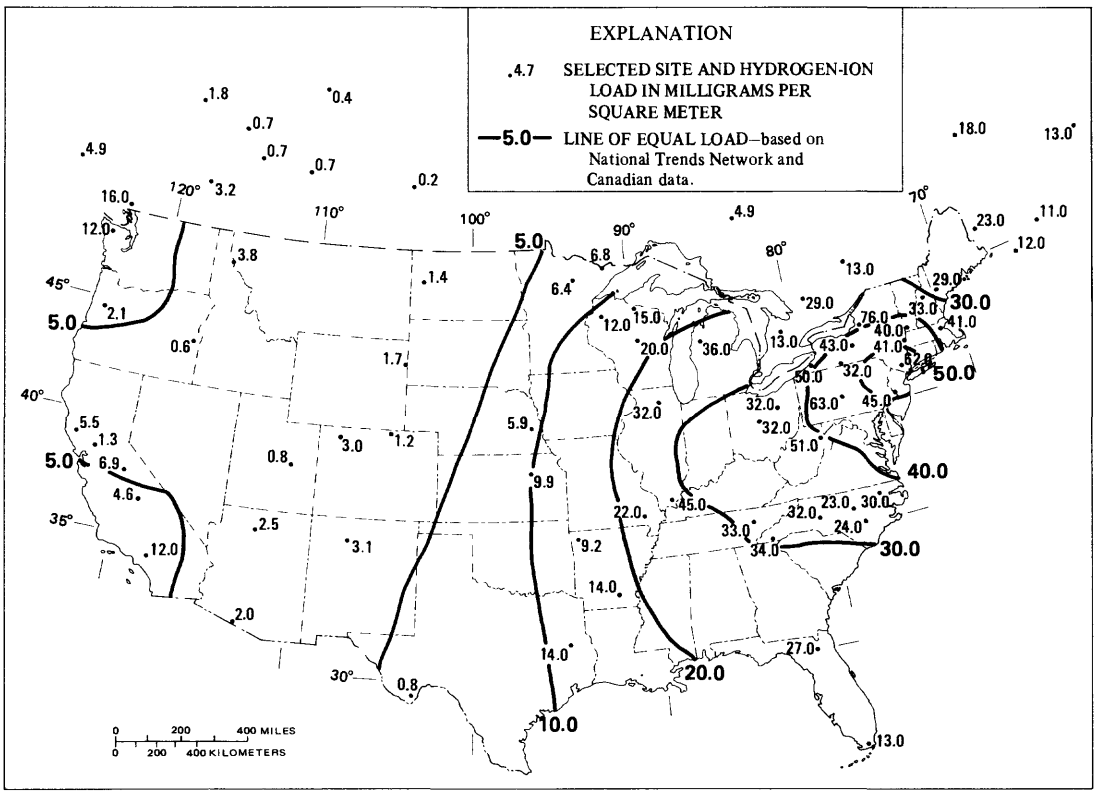


Figure 3a.--Annual constituent loads in precipitation, 1983: Hydrogen ion.

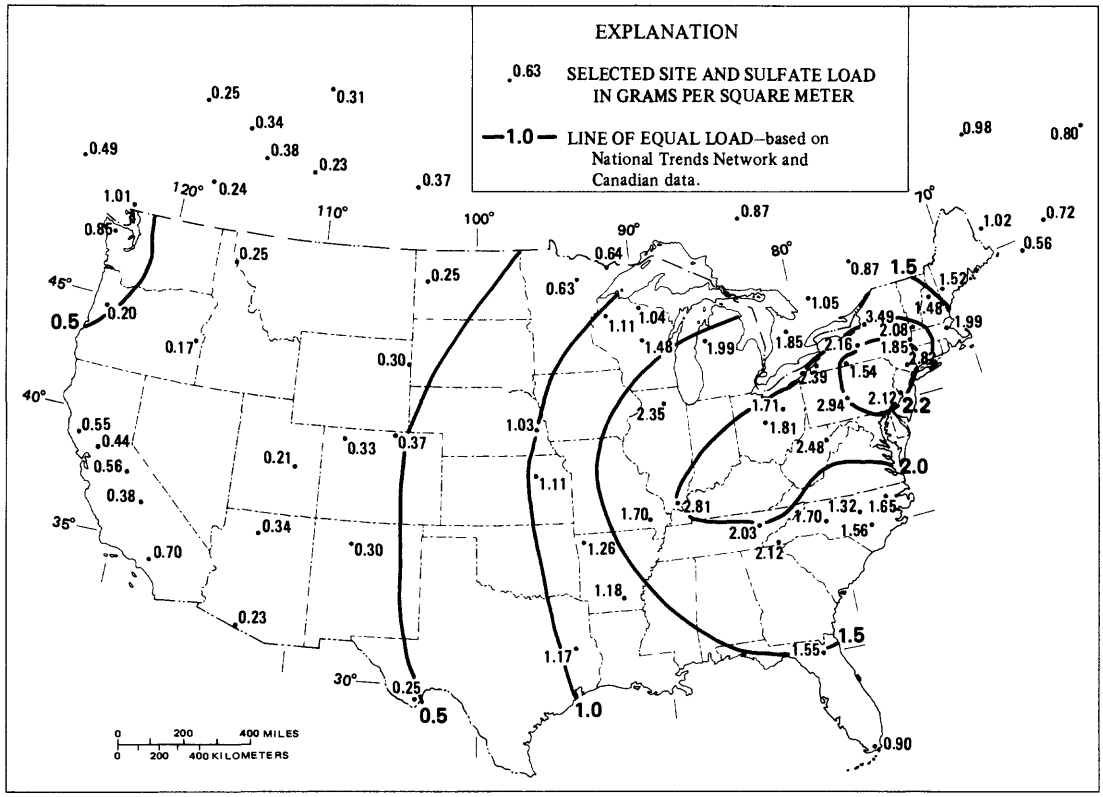


Figure 3b.--Annual constituent loads in precipitation, 1983: Sulfate.

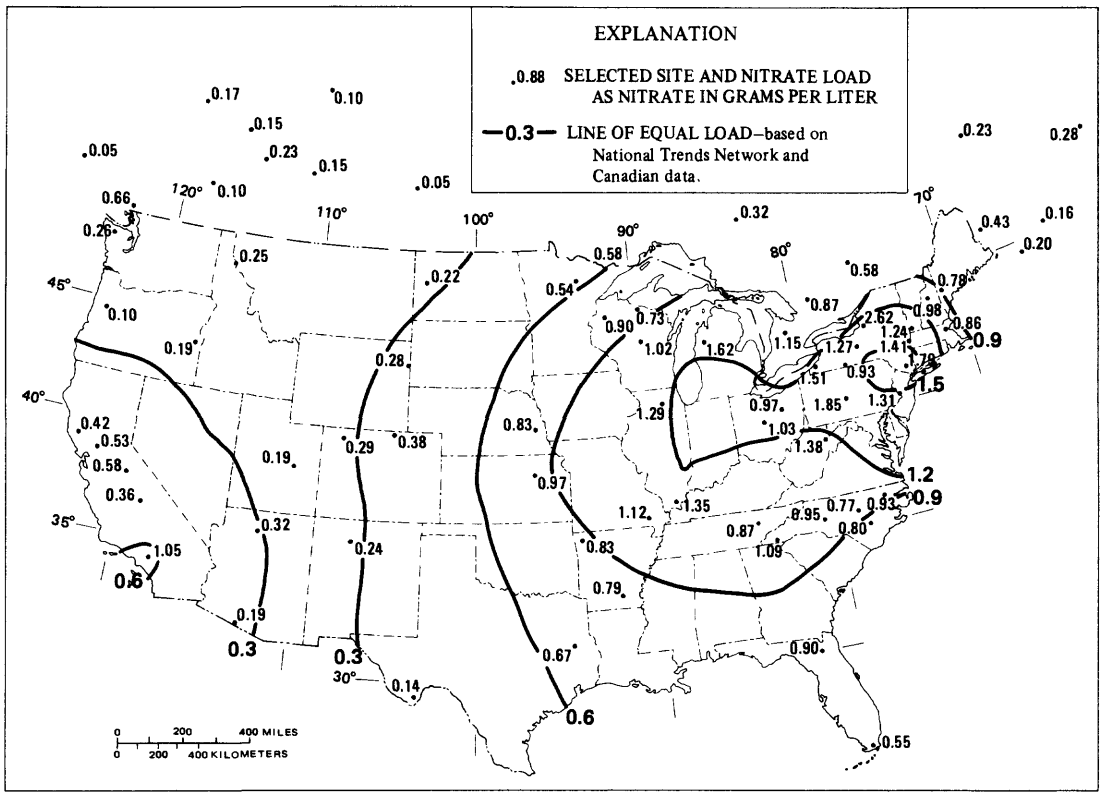


Figure 3c.--Annual constituent loads in precipitation, 1983: Nitrate.

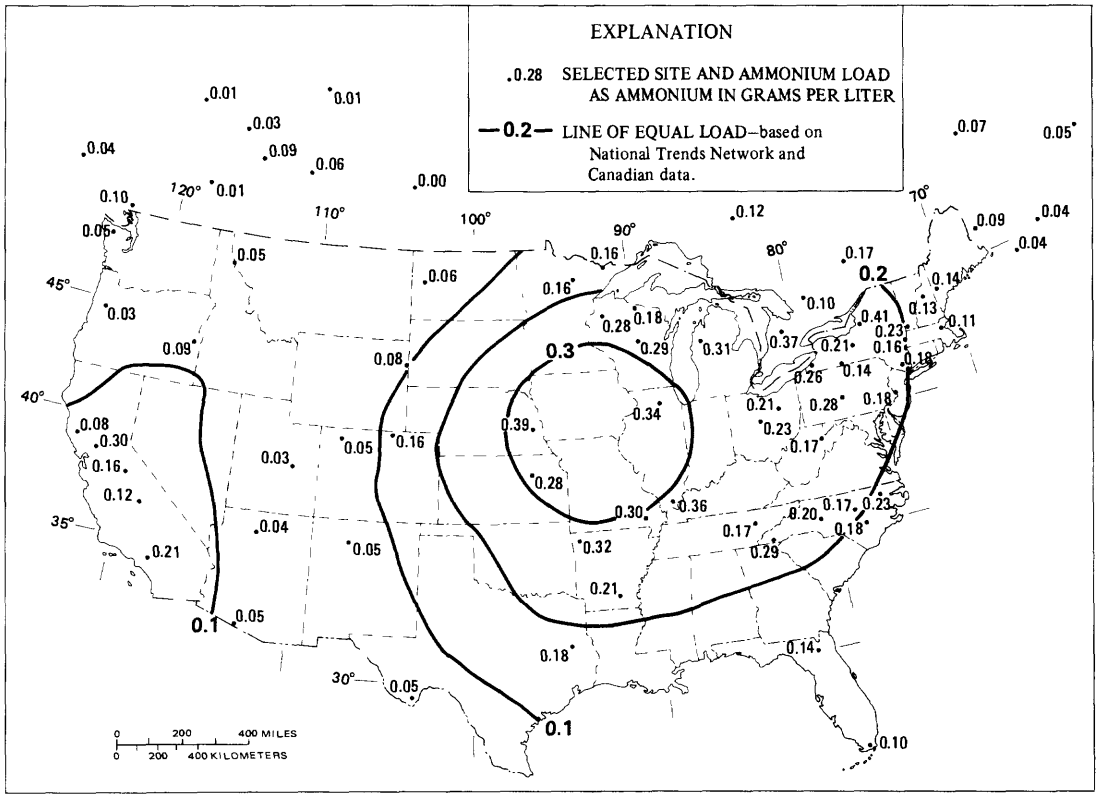


Figure 3d.--Annual constituent loads in precipitation, 1983: Ammonium.

Selected Ionic Ratios

Several maps were constructed to examine spatial distributions of selected ionic ratios. Ratios of annual mean volume-weighted sulfate to nitrate equivalents per liter were used to determine if areas exist where the predominance of these ions differ. The resulting map (fig. 4a) shows that in the eastern United States, where considerable fossil fuel containing larger concentrations of sulfur is used (U.S. Department of Energy, 1985), sulfate predominates and the ratio of sulfate to nitrate is greater than 2:1. In the western United States the ratio is lower than in the east; a large, semi-arid region extending from southern California to the Dakotas has ratios below 1.5:1. The only ratio below 1:1 is found near the dense southern California population center, where automobile traffic contributes significantly to oxides of nitrogen and where sulfur-dioxide emissions are closely regulated. Ratios increase to greater than 2:1 in the Pacific Northwest, reflecting the contribution of sulfate from sea salts. Based on comparison of mean sulfate-to-chloride ratios in ocean water, those volume-weighted concentration ratios in 1983 NTN wet deposition, sea salts are found to account for 23 to 35 percent of the sulfate in wet deposition in Oregon and Washington. In the northeastern United States, the area with the largest sulfate concentrations, sea salts contribute less than 1 percent of the sulfate.

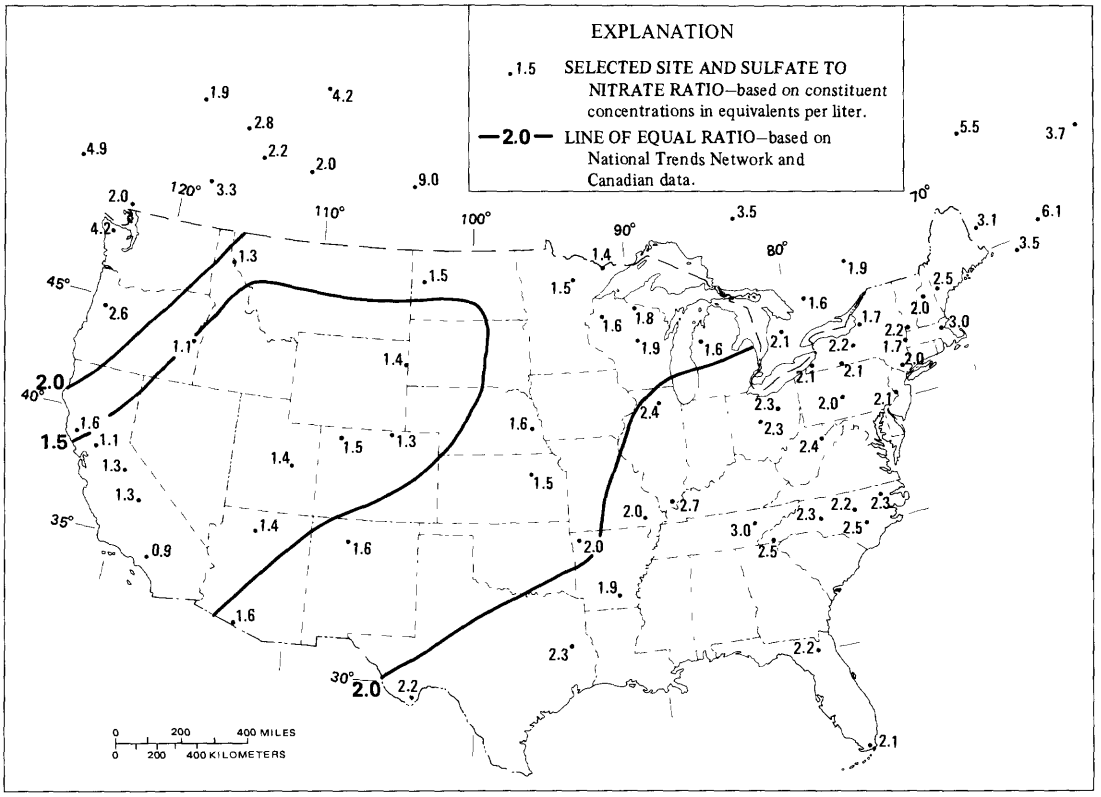


Figure 4a.--Volume-weighted ionic ratios in precipitation, 1983: Sulfate-to-nitrate values.

Another ratio of interest compares the sum of the sulfate and nitrate equivalents to the hydrogen-ion equivalents. Ratios are generally below 2:1 in the eastern United States, compared to ratios well above 2:1 elsewhere, (fig. 4b). The lower ratios indicate that large concentrations of sulfate and nitrate in the eastern United States may be primarily associated with hydrogen-ion concentrations. Sulfate and nitrate are often considered to be the principal acid-related ions in precipitation (U.S. Environmental Protection Agency, 1980). Ratios of sulfate-plus-nitrate equivalents to hydrogen plus ammonium plus calcium result in values generally near 1.0, above 1:1 in the eastern United States and generally below 1:1 in those areas to the west previously identified as having large ammonium-ion and calcium concentrations (fig. 4c). In the plains states, some of the hydrogen ions may be neutralized by constituents such as ammonia or anions associated with calcium. Calcium-associated anions neutralize hydrogen ions, according to the reactions:

(1) Source of hydroxide ions

$$CaO \text{ (combustion product)} + H_2O = Ca(OH)_2 = Ca^{+2} + 2OH^-$$

(2) Source of basic compounds

$$Ca(OH)_2 + CO_2 = CaCO_3 + H_2O$$

$$CaCO_3 \text{ (in windblown soils)} + H_2O + CO_3 = Ca(HCO_3)_2 = Ca^{+2} + 2HCO_3^-$$

(3) Neutralizing reactions

$$OH^- + H^+ = H_2O$$

$$HCO_3^- + H^+ = H_2CO_3$$

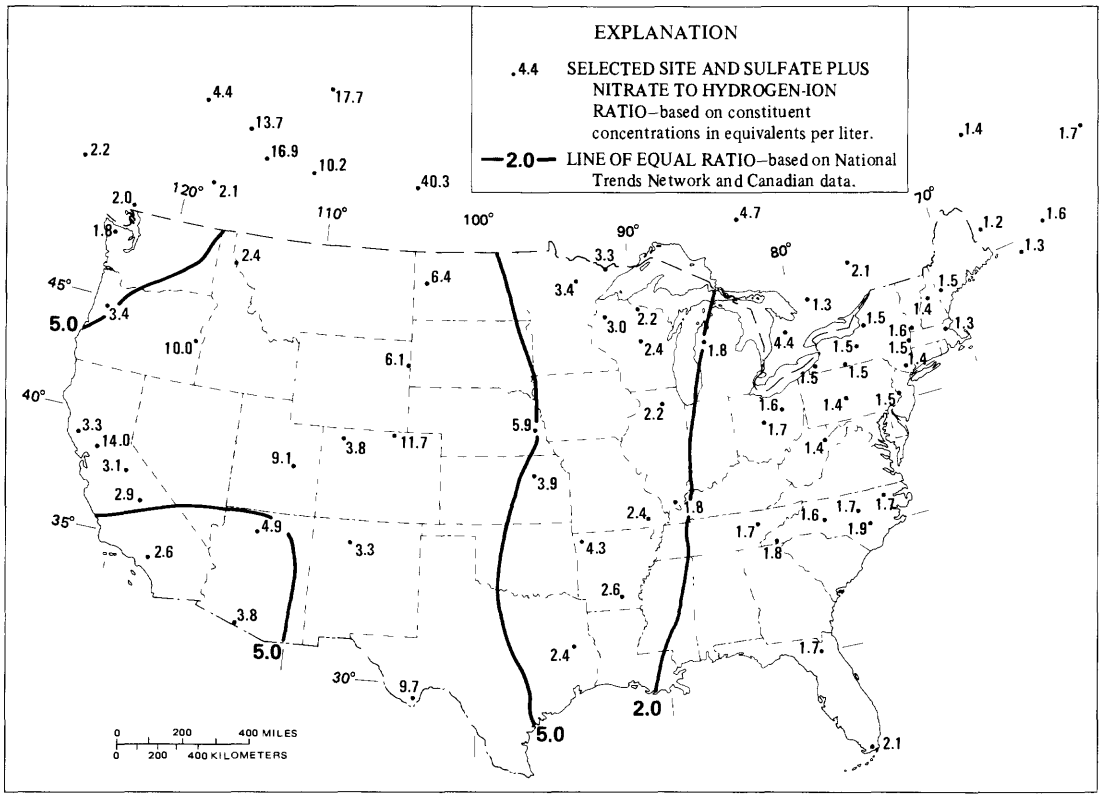


Figure 4b.--Volume-weighted ionic ratios in precipitation, 1983: Sulfate-plus-nitrate to hydrogen-ion values.

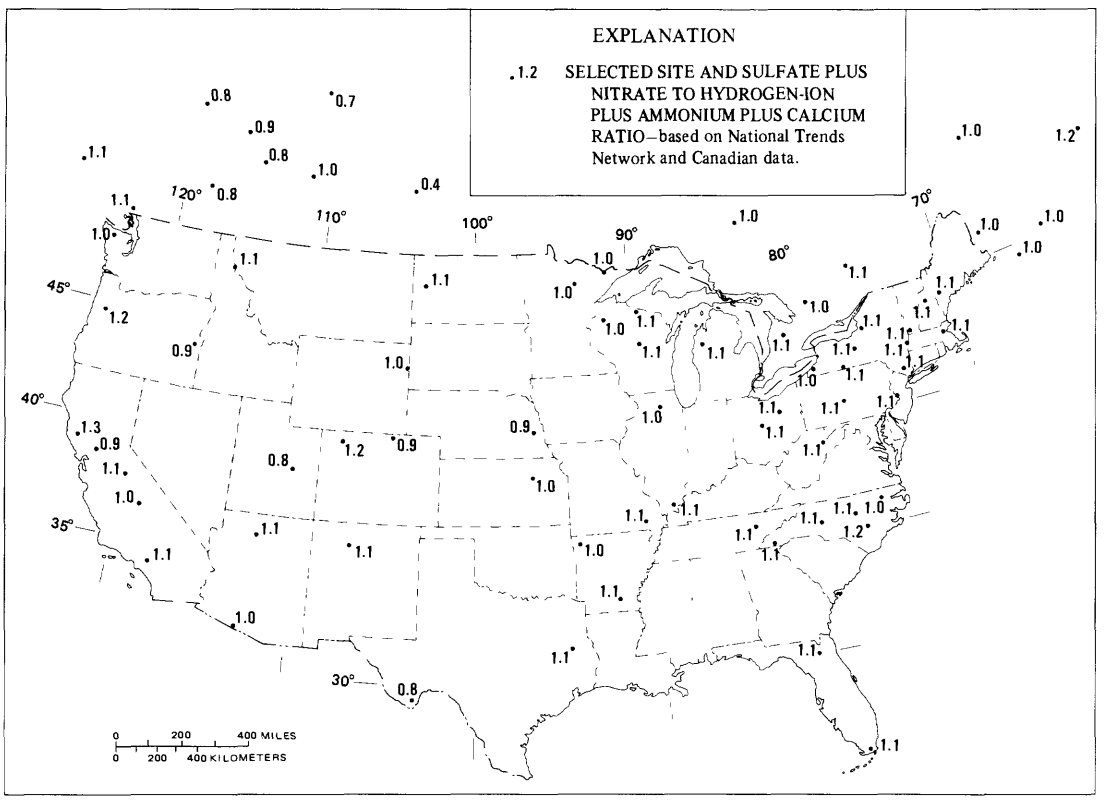


Figure 4c.--Volume-weighted ionic ratios in precipitation, 1983: Sulfate-plus-nitrate to hydrogen-ion-plus-ammonium-plus-calcium values.

Sensitivity of Kriging Analysis

Although a detailed sensitivity analysis was not done, the following observations were made during the analysis.

(1) Increasing the number of observation points above the eight used per neighborhood tended to result in smoother lines, but the general pattern did not change. Considering that some uncertainty surrounds each line, the smoothing that results from using more observation points is not significant.

(2) Selecting different mathematical forms for the semi-variogram did not significantly change patterns and locations of contours. These results were not surprising, because many of the different functional forms for the semi-variogram are quite similar for short distances. Results from different semi-variogram forms may appear quite similar, because Kriging procedures use a neighborhood of several points close to the location to be estimated, and the procedures give more weight to the closest points.

(3) A single observation point with a value considerably different from the surrounding observation points does have a noticeable effect on lines near that point. One Canadian site was not included in Kriging procedures for several constituents because it was very different from surrounding sites and caused an increase in the mapping gradient that was inconsistent with observed United States data. Because ancillary data were not readily available to support the relatively large concentrations at that site, the observed data from the Canadian site were not used.

(4) Because the CANSAP site protocol was different from the NTN site protocol and allowed CANSAP sites to be located near airports and cities, the effect on creating lines using only the 55 NTN sites was examined for pH values (fig. 5). Although differences between western CANSAP and western NTN data were notable, the CANSAP data did not have much apparent effect on lines in the United States. Only the 5.3-pH lines changed noticeably, and those changes were not large enough to alter previous interpretations regarding pH values. Thus, even though CANSAP data may appear different from NTN data and even though the sites are located under different protocols, this inclusion of Canadian data does not significantly alter the Kriged lines in the United States.

REGIONAL DISTRIBUTION AND VARIABILITY OF PRECIPITATION-CHEMISTRY DATA BY CHEMICAL GROUP

Regionalization of data is a process in which data from a large geographic area are partitioned into categories that represent smaller homogeneous geographic areas known as regions. The homogeneity of each region is based on preselected variables that exhibit much less variability within a region than they do between regions, making each region distinct. Variables selected for regionalization provide insight into the structure of the data so that causes may be related to the resultant measured values. In the previous section, each map was a regionalization of a single variable, with emphasis placed on one value, either annual mean volume-weighted concentration values or annual loads.

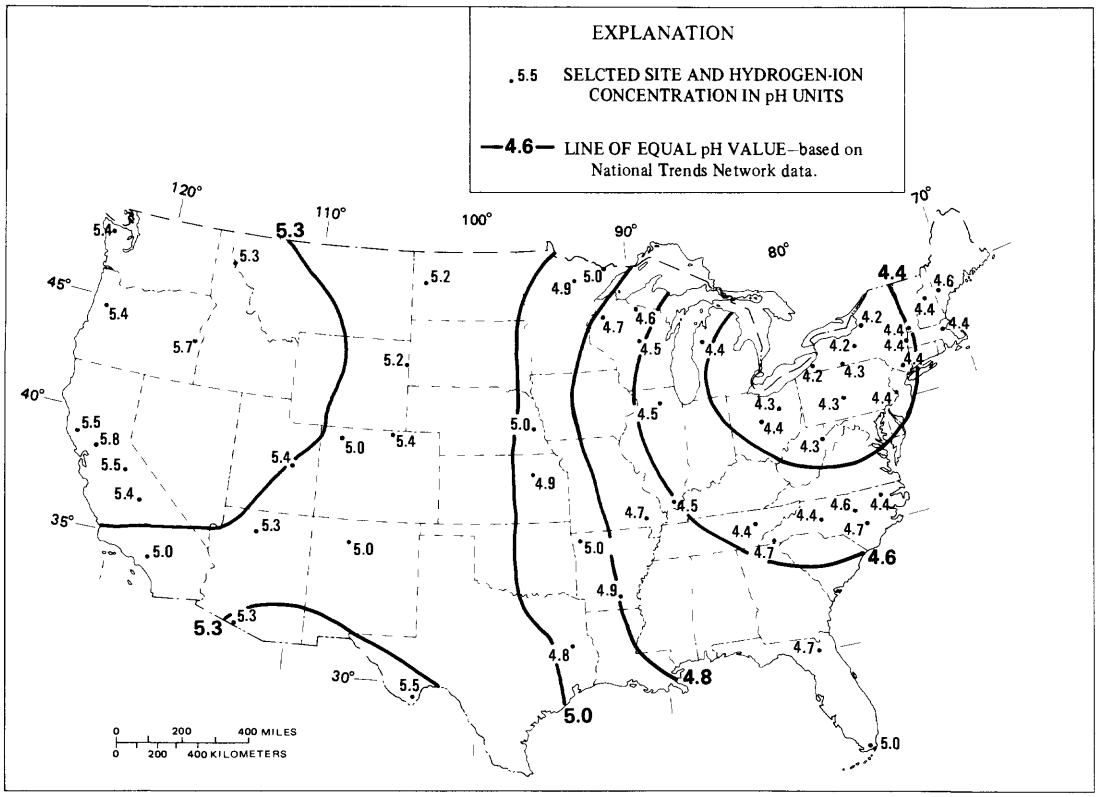


Figure 5.--Lines of equal volume-weighted hydrogen-ion concentrations in precipitation at National Trends Network sites, 1983.

Regions were identified by drawing lines of equal concentration that indicate geographic areas of similar values for a single variable. A broader, more generalized approach to regionalization, that employs numerous variables from each site simultaneously, is examined in this section of the report. Ratios of ionic equivalent concentrations are used to provide a chemical fingerprint for each site, assuming that the fingerprints are similar in areas where regional influences on the chemical composition are similar. CANSAP data were not included in this regional analysis.

Chemical Grouping Techniques

Graphical Procedures Using Trilinear Diagrams

Trilinear diagrams (Hem, 1985) were used as an effective visual aid for comparing data from different sites and for grouping the precipitation analyses into chemically similar groups. These diagrams show the concentrations of major dissolved ions reported in percentage of total equivalents per liter of cations (H, NH_4, Ca, Mg, Na, and K) or anions (SO_4, NO_3, and Cl). Diagrams for each site are shown in Appendices II and III.

For a specific weekly analysis, an increase in the chemical concentration of just one cation or anion will change the total equivalents per liter of the cations or anions; consequently, the percentages of all other cations or anions for that sample will also change. For example, large sodium concentrations from sea salts will increase the total cation concentration (equivalents per liter), resulting in sodium percentage increases and corresponding decreases in other cation percentages (even though the other cation concentrations did not decrease). Caution should therefore be exercised in interpreting triliear plots, because the plots depict percentages and not concentrations.

Cluster Analysis

Concern regarding the subjectivity of the graphical procedures led to the use of two mathematical procedures to cluster the precipitation data. The two clustering procedures were (1) Ward's method and (2) average linkage on squared Euclidean distances. Ward's method is biased toward producing clusters with small and roughly the same number of observations, whereas the average linkage method is biased toward producing clusters with small and roughly the same variance (SAS, 1982). Both of these procedures have been commonly used in many studies (SAS Institute, 1982). Variables used in the cluster analysis were the median values of: hydrogen, ammonium, and calcium, as a percentage of the total cations; and sulfate and nitrate, as a percentage of the total anions. The inclusion of ammonium and calcium ions is based on their importance in balancing ionic equivalents of the acid-related species, sulfate and nitrate.

Results of Analyses

Site data were classified into six different chemical groups, on the basis of concentrations of the hydrogen ion and sulfate-plus-nitrate ions in the weekly precipitation samples (table 3). Areas of the trilinear diagrams used to identity different chemical groups are shown in figure 6. Chemical groups tended to cluster into separate geographic areas throughout the United States (fig. 7). These groups are group 1 in the northeast, group 2 just west of group 1 sites, groups 3 and 4 in the midsection of the United States, group 5 along the eastern coast, and group 6 along the western coast.

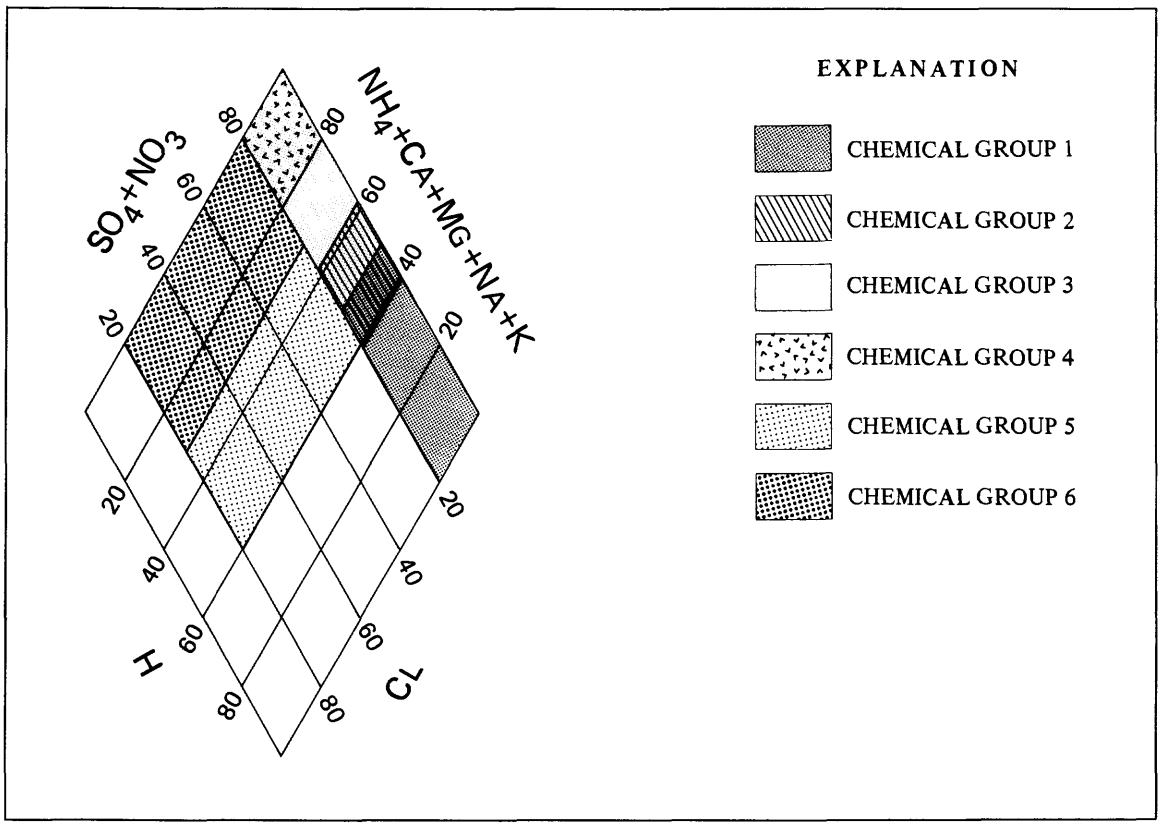


Figure 6.--Ionic percentages used to delineate National Trends Network precipitation into chemical groups.

Table 3.-- Selected precipitation-chemistry composition based on weekly concentrations, by chemical group, January through December, 1983

[Example: for group 1, 50 percent of the analyses had hydrogen-ion compositions less than or equal to 62 percent of the total equivalents of cations]

Chemical group	Hydrogen, in percent of total equivalents of cations			Sulfate plus nitrate, in percent of total equivalents of anions		
	10	50	90	10	50	90
1	32	62	78	82	94	97
2	13	51	72	86	95	97
3	1	23	55	79	91	97
4	1	3	22	80	90	96
5	8	36	68	39	73	94
6	2	14	42	22	64	90

Results of the clustering procedures generally were similar to the results obtained using trilinear diagrams. Both Ward's method and the average linkage method indicated similarity between groups 1 and 2, as did the trilinear plots. The western and eastern coastal sites clustered into separate groups. In a few instances, some western coastal sites (as defined by the trilinear plots) were clustered with group 3 or group 4 sites; some eastern coastal sites were clustered with group 1 sites; and some group 3 sites clustered with group 4 sites. Thus, although a few sites were placed in geographically adjacent regions using the mathematical procedures, the different cluster techniques generally support the patterns found using the trilinear diagrams.

Chemical groups 1 through 4 differ primarily in hydrogen-ion percentage, with group 1 having the largest percentage and group 4 having the smallest percentage (table 3). Group 2 has hydrogen-ion percentages intermediate between group 1 and 3; group 2 sites are located in a transitional area between groups 1 and 3. Both coastal groups appear to be ocean-influenced, with resulting increases in the chloride percentage accounting for observed decreases in the sulfate-plus-nitrate percentage. Sodium percentages also increase at the coastal sites with corresponding decreases in the hydrogen-ion percentage. The western coastal group has a hydrogen-ion percentage noticeably smaller than that of the eastern coastal group; precipitation along the eastern coast may reflect influences of downwind effects of sources in proximity to group 1 sites.

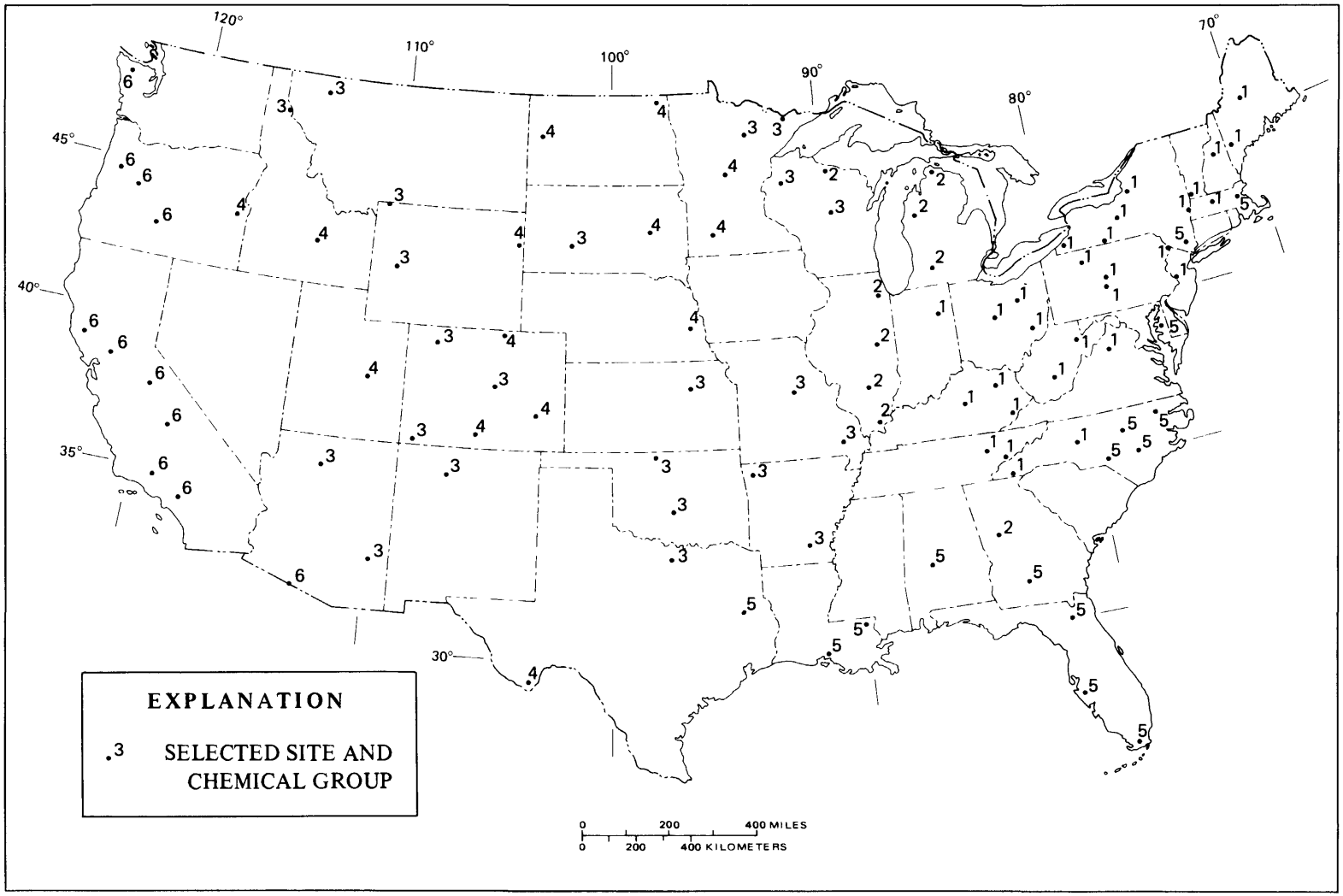


Figure 7.--Locations of chemical groups that were delineated for precipitation collected in the National Trends Network, 1983.

Volume-weighted Ionic Percentages

Annual comparisons

Annual mean volume-weighted chemical concentrations that were used for the Kriged maps (figs. 2a through 2j) subsequently were used to compute annual mean ionic percentages. Each site was assigned (using weekly values) to the groups previously defined using the trilinear diagrams. Groupings of annual values tended to minimize some of the variability observed in the weekly precipitation data (fig. 8). Results of these calculations are shown in table 4, and implications of the results are discussed below.

Group 6 to group 4 sites --

From group 6 (west coastal sites) to group 4 sites, the ion percentages of ammonium, sulfate, and nitrate increased; hydrogen and chloride decreased. Decreases in chloride percentage correspond to increasing distances from the ocean. An increase in ammonium percentage could chemically influence the hydrogen-ion percentage because ammonia or ammonium-hydroxide released to the atmosphere will react with the hydrogen ion, reducing acidity and causing a reduction in the hydrogen-ion percentage. Therefore, increases in hydrogen ion associated with increases in sulfate and nitrate may be counteracted by increases in ammonia release. Soils at group 4 sites are drier and basic. At these group 4 sites more windblown soil particulates may be in the sample and neutralizing the hydrogen ion.

Group 4 to group 3 sites --

The quality of precipitation at these sites is comparable, except for the notable increases in the hydrogen-ion percentage from group 4 to group 3 sites. Slight increases in sulfate percentage may be associated with the hydrogen-ion percentage increases. Slight decreases in the ammonium-ion percentage may be associated with the hydrogen-ion percentage increases.

Group 3 to group 2 sites --

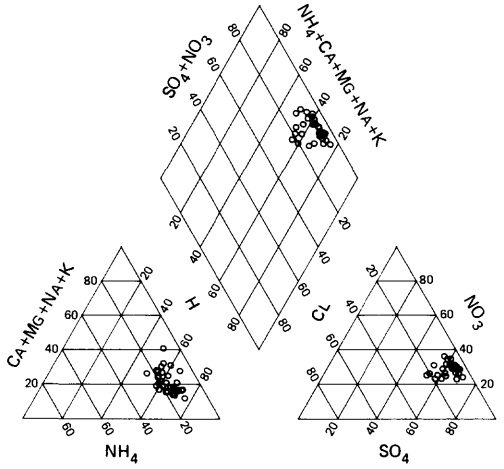
Group 2 and group 3 sites have similar percentages of ammonium, sulfate, and nitrate except that group 2 sites generally have larger hydrogen-ion percentages.

Group 2 to group 1 sites --

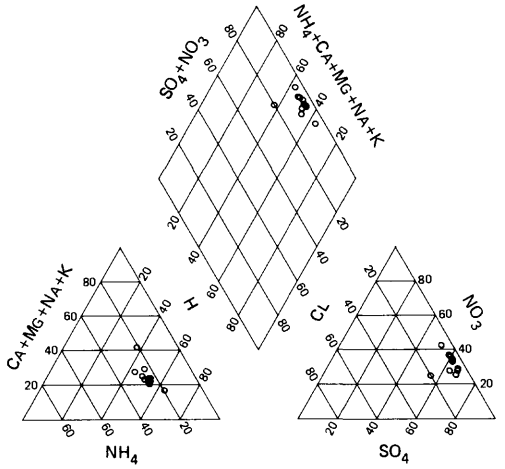
Group 1 sites have larger hydrogen-ion percentages, that may be partly related to the smaller ammonium-ion percentages at group 1 sites; that is, less ammonia or ammonium hydroxide is available to neutralize acidity (by reacting with hydrogen ions).

Group 1 to group 5 sites --

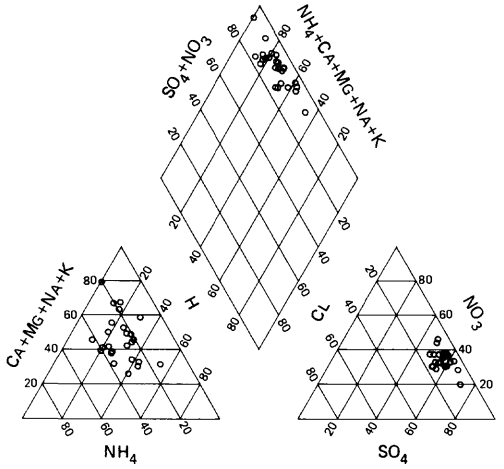
Group 5 sites have smaller percentages of hydrogen ion, sulfate, and nitrate. Larger percentages of chloride at the coastal sites probably are the result of the close proximity of these sites to the Atlantic Ocean.



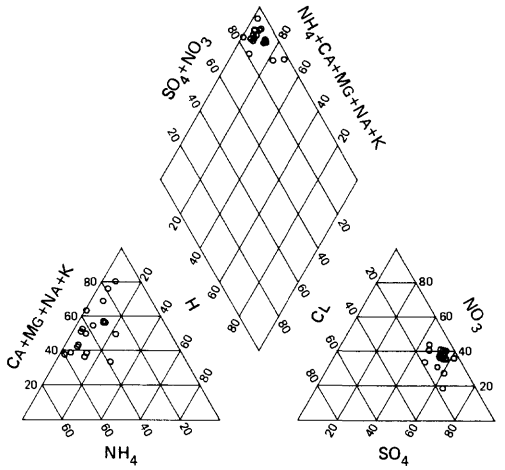
CHEMICAL GROUP 1



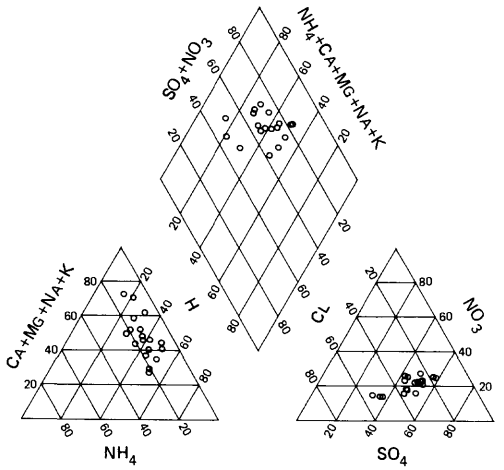
CHEMICAL GROUP 2



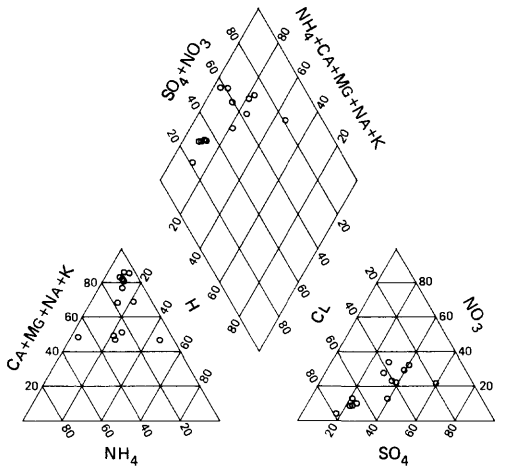
CHEMICAL GROUP 3



CHEMICAL GROUP 4



CHEMICAL GROUP 5



CHEMICAL GROUP 6

Figure 8.--Annual volume-weighted ionic ratios for each chemical group.

Table 4.--Selected precipitation-chemistry composition based on annual volume-weighted concentrations, by chemical group, January through December 1983.

Chemical group	Percent of total equivalents of cations: Hydrogen 10	50	90	Ammonium 10	50	90	Percent of total equivalents of anions: Sulfate plus nitrate 10	50	90	Chloride 10	50	90	Sulfate 10	50	90	Nitrate 10	50	90
1	54	64	72	10	16	22	82	93	96	4	7	18	54	63	68	23	29	34
2	39	52	61	20	24	28	83	95	96	4	5	17	53	62	67	25	33	41
3	12	26	43	10	24	42	84	92	95	5	8	16	48	56	64	29	36	40
4	2	7	22	19	39	56	83	92	96	4	8	17	46	55	61	27	37	41
5	20	37	51	7	14	22	49	69	82	18	31	51	35	48	57	14	22	26
6	5	12	37	4	9	41	25	57	78	22	43	75	19	30	52	6	22	33

Results of this comparison (using 50-percentile values; table 4) indicate that groups 1 and 2 have large percentages of sulfate-plus-nitrate ions and correspondingly large hydrogen-ion percentages. At group 4 sites the sulfate-plus-nitrate percentage is large, but the ammonium-ion percentage is considerably larger than those percentages for group 1 and 2 sites, and the hydrogen-ion percentage is smaller than those at group 1 and 2 sites, possibly reflecting the neutralizing mechanism discussed above. In contrast, group 3 sites have large sulfate-plus-nitrate percentages, but hydrogen-ion percentage is small, without the correspondingly large ammonium-ion percentage observed at group 4 sites. However, maps show that group 3 sites have concentrations of sulfate, hydrogen ion, and nitrate concentrations considerably smaller than those at group 1 sites. Thus, a hydrogen-ion neutralizing constituent other than ammonia or ammonium hydroxide may be present at group 3 sites; or the sulfate and nitrate may be associated with the same proportion of hydrogen ions as those at group 1 and 2 sites. The western and eastern coastal sites (groups 5 and 6) show ocean influences of chloride that cause corresponding decreases in the sulfate-plus-nitrate percentages. Notice, however, that the hydrogen-ion percentage for eastern coastal sites is three times larger than that of western coastal sites because of the close proximity of eastern coastal sites to group 1 sites.

Seasonal comparisons

Ionic percentages based on annual mean volume-weighted concentrations were separately computed for the winter and summer time periods for each chemical group. The 10-, 50- (median), and 90-percentiles of selected ionic percentages are listed in table 5.

Table 5.--Selected precipitation-chemistry composition based on seasonal volume-weighted concentrations, January through December, 1983.

["SU" indicates summer months of June, July, and August; "WI" indicates winter months of December, January, and February]

Chemical group	Season	Percent of total equivalents of cations: Hydrogen 10	50	90	Ammonium 10	50	90	Percent of total equivalents of anions: Sulfate plus nitrate 10	50	90	Chloride 10	50	90	Sulfate 10	50	90	Nitrate 10	50	90
1	SU	58	70	77	13	17	23	95	97	98	2	3	5	65	71	75	23	25	31
1	WI	26	56	70	3	11	20	62	88	94	6	12	38	41	53	70	15	34	43
2	SU	34	55	62	16	22	37	90	96	96	4	4	10	63	67	71	24	28	33
2	WI	33	56	72	11	17	33	84	92	95	5	8	16	34	52	65	26	42	57
3	SU	18	29	54	14	25	38	88	94	96	4	6	12	45	57	68	29	38	43
3	WI	5	29	50	10	24	42	77	92	95	5	8	23	33	53	62	27	39	56
4	SU	3	7	20	19	44	54	79	93	95	5	7	21	36	50	59	30	40	50
4	WI	1	8	33	2	29	68	81	89	94	6	11	19	41	48	68	22	41	50
5	SU	41	60	77	2	15	26	69	84	96	4	16	31	36	56	70	24	27	47
5	WI	14	30	41	3	10	20	33	54	77	23	46	67	24	38	52	9	17	25
6	SU	1	27	37	2	22	40	45	73	93	7	27	55	30	39	48	9	33	58
6	WI	4	17	40	4	11	48	20	48	65	35	52	80	15	30	35	5	18	32

Seasonal differences from summer to winter months (table 6) are as follows:

1. The median chloride percentage increases by more than 5 percent from summer to winter months at coastal sites and also at group 1 sites that are adjacent to the eastern coastal sites. These increases may be ocean-influenced, reflecting increased frontal storm activity during the winter. Frontal storms draw in large amounts of oceanic moisture, whereas summer storms are of a more localized convective form. A convective storm generally does not draw in large amounts of moisture. In the west, frontal storms involve strong advection of oceanic air (westerly wind flows), both ahead of the warm front and north of the center of low pressure.

Table 6.-- Comparison of summer and winter precipitation-chemistry compositions

"I" indicates median ion percentage increases from summer-to-winter months; "D" indicates median ion percentage decreases from summer to winter months; "--" indicates that a change was less than 5 percent of total cations or anions; The significance of these changes were not statistically determined.

Chemical group	Change in median ion percentage of wet deposition from summer to winter months				
	Hydrogen	Ammonium	Sulfate	Nitrate	Chloride
1	D	D	D	I	I
2	--	--	D	I	--
3	--	--	--	--	--
4	--	D	--	--	--
5	D	D	D	D	I
6	D	D	D	D	I

2. Summer-to-winter decreases in median hydrogen, ammonium, and sulfate percentages occur at the coastal sites and at group 1 sites. These decreases seem to be merely the result of increased sodium and chloride percentages.

3. Median nitrate percentages increase during the winter at group 1 and 2 sites and decrease during the winter at the coastal sites. The decrease in the nitrate percentage may also be the result of increased sodium and chloride percentages.

Chemical Concentrations

Weekly chemical concentrations

Statistical distributions that describe chemical concentrations of weekly composited samples give equal weight to each sample, regardless of the quantity of precipitation associated with each. Unweighted weekly data are more appropriate, as opposed to volume-weighted data, for relating to environmental processes that are affected by not only the concentration, but also by the duration (amount of time, in weeks) of the acidic effects of precipitation.

Median chemical concentrations for each chemical group are ranked in table 7. Rankings for each group are summarized as follows:

Group 1: among the largest median values of the acid-related constituents (hydrogen, sulfate, and nitrate) and specific conductance. The hydrogen-ion concentration and the large equivalent ionic conductance of the hydrogen ion are primary controls on the specific conductance of a sample.

Table 7.--Ranking of the median weekly chemical concentrations and precipitation quantity for each chemical group

The number indicates the ranking of median chemical concentrations; "1" indicates group with the largest median chemical concentration, and "6" indicates group with the smallest median chemical concentration.

Chemical group	Chemical constituent or physical property										
	Sulfate	Nitrate	Chloride	Ammonia	Sodium	Hydrogen	Calcium	Magnesium	Potassium	Conductance	Rain gage
1	2	2	4	4	5.5	1	4	6	6	1	3
2	1	1	5	2	5.5	2	3	5	4	2	4
3	4	4	6	3	4	4	2	3	3	4	5
4	5	3	3	1	3	6	1	1	1	5	6
5	3	5	1	5	1	3	5	2	2	3	2
6	6	6	2	6	2	5	6	4	5	6	1

Group 2: among the largest median values of the acid-related constituents (hydrogen, sulfate, nitrate, and ammonium) and specific conductance; among the smallest median values of sodium and chloride.

Group 3: among the largest median values of calcium; among the smallest median values of chloride and weekly precipitation quantities.

Group 4: among the largest median values of ammonium, calcium, and potassium; among the smallest median values of hydrogen, sulfate, specific conductance, and weekly precipitation quantities.

Group 5: among the largest median values of sodium, potassium, chloride, and weekly precipitation quantities; among the smallest median values of nitrate and ammonium.

Group 6: among the largest median values of sodium, chloride, and weekly precipitation quantities; among the smallest median values of hydrogen, sulfate, nitrate, ammonium, calcium, potassium, and specific conductance.

From the western to eastern chemical groups across the United States, median concentrations of hydrogen, sulfate, nitrate, and specific conductance tend to increase. Chemical groups having the largest median concentrations of sulfate, nitrate, and specific conductance tend to have the largest hydrogen-ion concentrations. Ocean influences account for the larger concentrations of sodium and chloride at the eastern and western coastal sites.

Group 4 sites have the largest concentrations of ammonium, calcium, magnesium, and potassium. Group 4 sites also have the smallest weekly precipitation quantities, a trend which is consistent with potentially dusty areas, suggesting that these ions originate from wind-blown dust in semi-arid or highly cultivated areas. Large ammonium concentrations may in part be caused by livestock-farming activities, by the application of fertilizer in cultivated farming areas, and the release of ammonia to the atmosphere from near neutral or alkali soils. The small hydrogen-ion concentrations at group 4 sites may be due in part to (1) minimal loadings from hydrogen-ion sources and (2) the neutralizing effects of calcareous dust and large concentrations of ammonia and ammonium hydroxide.

Summer and winter volume-weighted concentrations

Seasonal volume-weighted chemical concentrations and precipitation quantities are presented in figures 9a through 9k, which are box plots. Summertime concentrations of chemicals in precipitation tend to be larger than wintertime concentrations, except for sodium and chloride. The larger wintertime concentrations of sodium and chloride probably are related to the passage of ocean-influenced storm fronts during the winter. Largest decreases from summertime to wintertime in the median chemical concentrations (in milligrams per liter) occur consistently at group 1 sites. The relative decreases in the median concentrations of sulfate, nitrate, and hydrogen ion are generally comparable within a group. For example, the median winter concentrations of sulfate, nitrate, and hydrogen are about 25-40 percent of the median summer concentrations for group 1; the median winter values for group 4 are about 90 to 100 percent of the median summer values. Larger summertime chemical concentrations may be associated with:

(1) increased residence times of air masses during the summer (Bloxam and others, 1984);

(2) increased summertime rates of reaction (resulting from warmer air temperatures) for the oxidation of sulfur dioxide or nitric oxide to sulfite or nitrogen dioxide, chemical species that readily react with water to form sulfuric and nitric acids;

(3) increased summertime occurrence of convective storms, which are more efficient than frontal storms in scrubbing contaminants from an air mass (Bloxam and others, 1984); and

(4) larger summertime air-pollutant loadings due to increased power generation for cooling (Harry Lins, U.S. Geological Survey, oral commun., 1986).

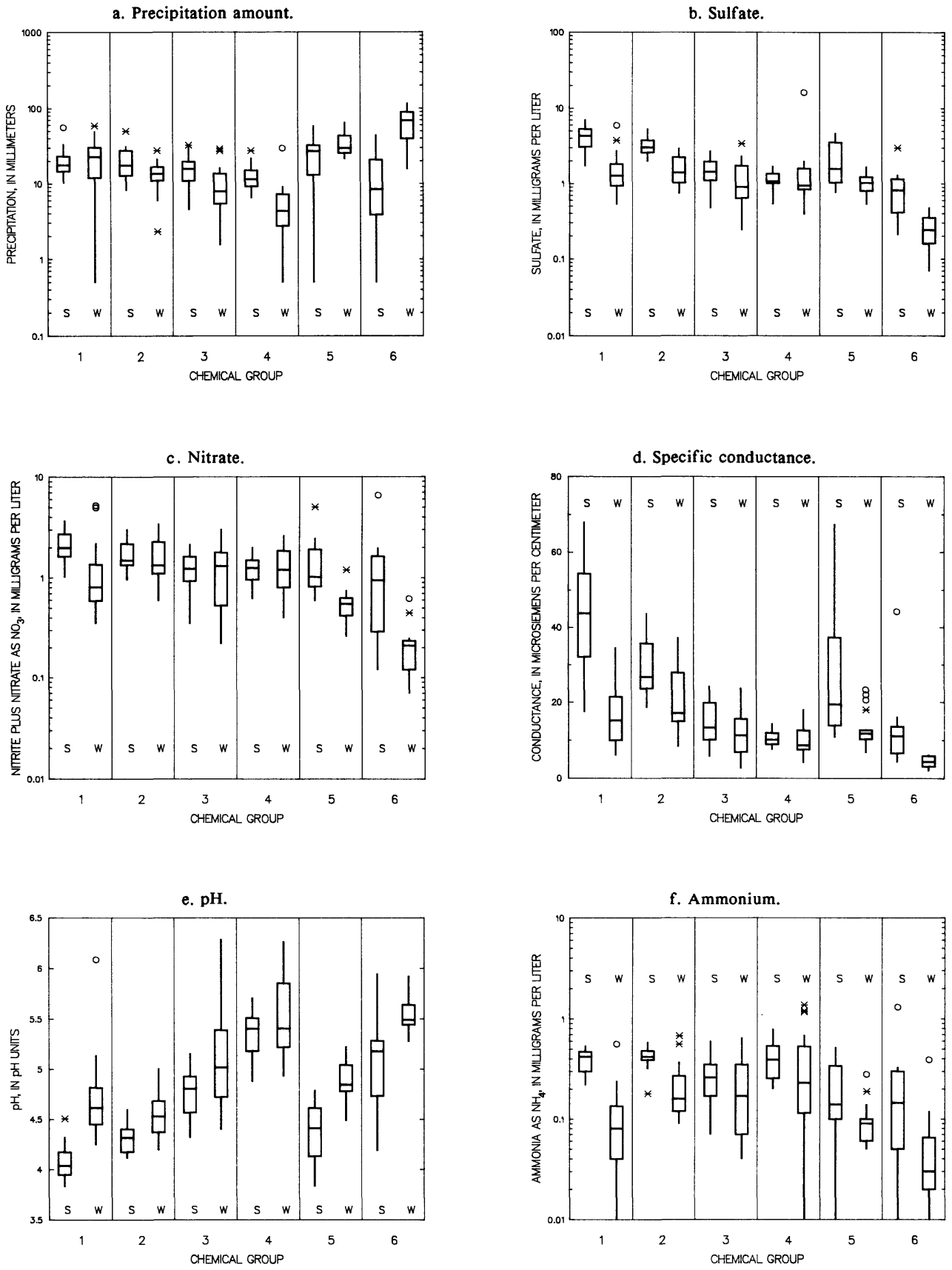


Figure 9.--Summer-winter comparison of volume-weighted mean concentrations for each chemical group.

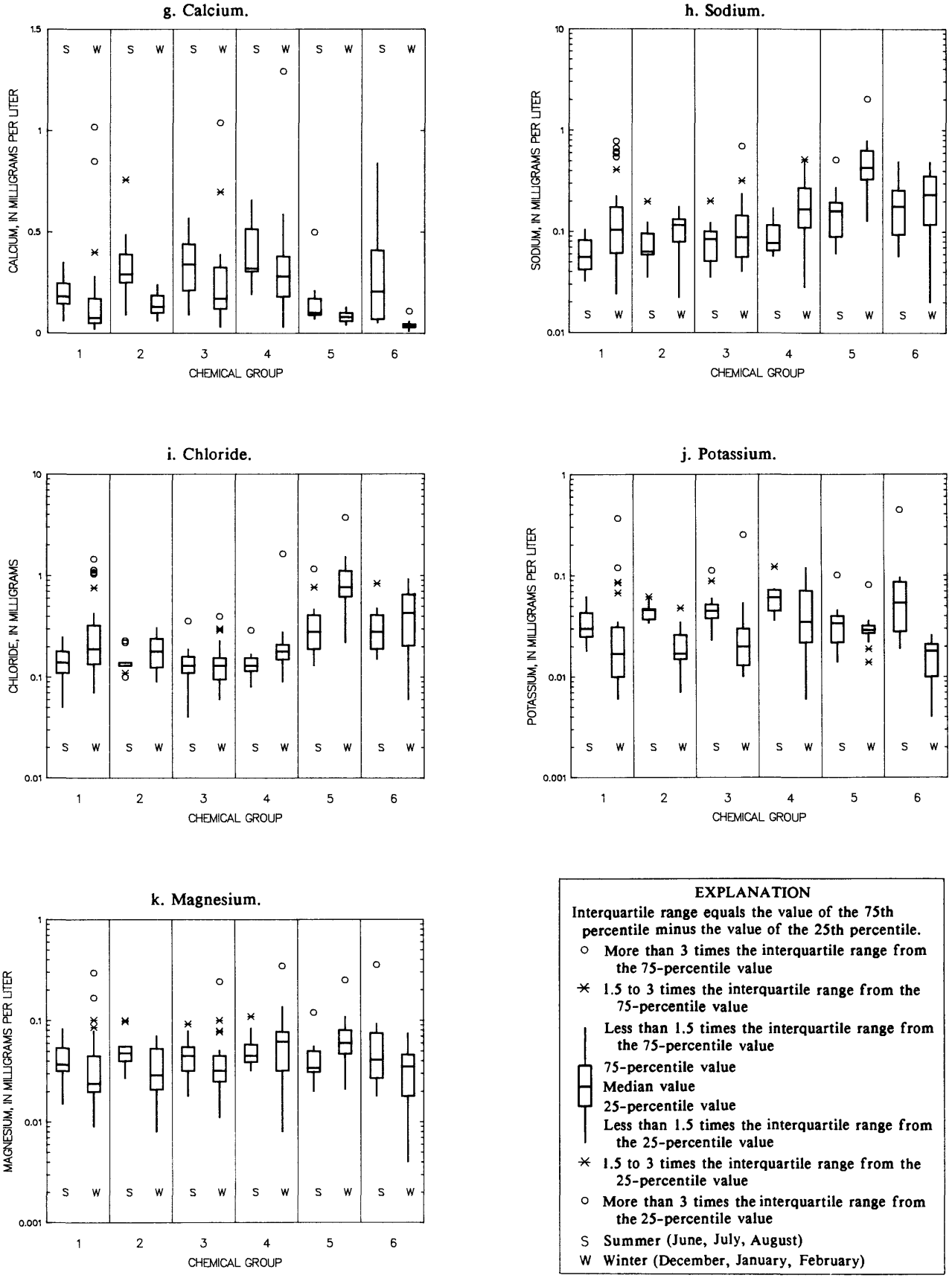


Figure 9.--Summer-winter comparison of volume-weighted mean concentrations for each chemical group--continued.

Cation-to-anion ratios

Chemical analyses of precipitation may be checked by computing cation/anion balances based on ratios of the measured equivalents of cations and anions. If all the major cations and anions are accurately measured in an electrically neutral precipitation sample, the sum of the equivalents of cations divided by the sum of the equivalents of anions should be 1.0.

Median ratios of cations to anions for all chemical groups except group 4 were within plus or minus 0.1 units of 1.0 (fig. 10). Group 4 sites, the sites with the highest weekly pH levels, have the largest median ratios (about 1.2), indicating that the sums of cation equivalents are larger than the sums of anion equivalents. The larger ratios observed in the weekly analyses of precipitation from group 4 sites could result from a positive bias in one or more of the cations or a negative bias in one or more of the anions. Another possibility is that one of the major anions is not being analyzed. Theoretical alkalinities, based on the laboratory pH of precipitation samples, were computed and added to the sums of the anions to examine changes in the ratios of the cations to anions. The computed ratios were basically the same as those shown in figure 10, except in group 4 and 6 sites, where median ratios dropped about 0.05 units; however, ratios for group 4 sites were still positively biased, generally above 1.15. A plot of the ratios of volume-weighted cations to anions versus volume-weighted pH levels indicates that the ratios increase as pH levels increase (fig. 11). The relation between the ratio of cations to anions for weekly samples and pH levels also shows a significant positive correlation (Kendall Tau statistic = 0.29 and p-level = 0.0001). Ratios of cations to anions need not be directly related to the pH of the precipitation samples, because pH could be acting as a surrogate for other factors. For example, as pH increases, some chemical concentrations in precipitation may be decreasing, and an analytical bias may only occur when certain constituents have small concentrations.

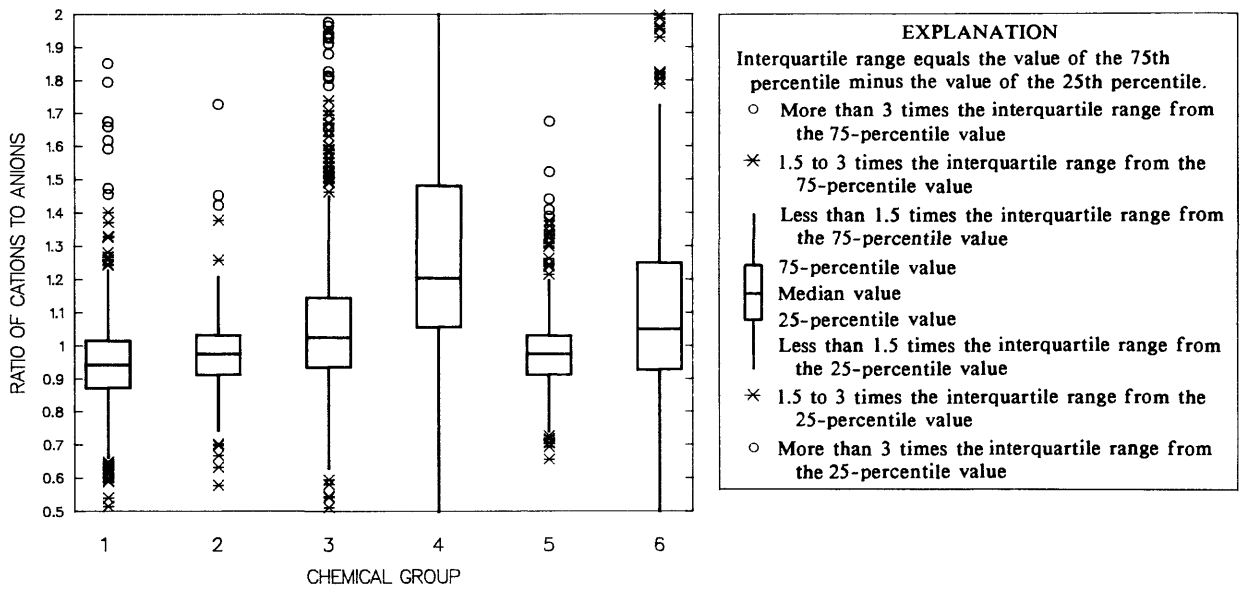


Figure 10.--Comparison of cation to anion ionic ratios, in weekly precipitation samples, by chemical group. Some extreme values are not shown.

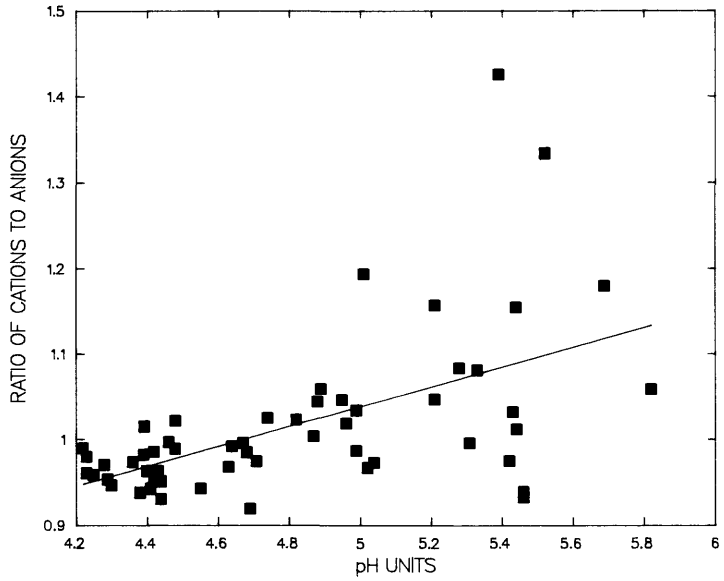


Figure 11.--Relation between annual volume-weighted mean pH values and the ionic ratios of cations to anions in precipitation.

Procedures outlined by Miles and Yost (1981) were used to further explain why the cation-to-anion ratios were generally larger than 1.0 at the group 4 sites. DION values (differences between the sum of anions and cations, in equivalents per liter) were plotted against DSC values (differences between the measured and calculated specific conductances). The DION and DSC relation indicates that most of the DION values were near zero and that most of the DSC values were near zero. Zero values indicate that the major ions are ionically balanced (because the sum of anions minus sum of cations is zero and because measured specific conductance minus the calculated specific conductance is zero). The major pattern observed in the scatter plot indicated that the largest deviations from DION = 0 and DSC = 0 occurred when DION values were less than zero and when DSC values were greater than zero. The most likely explanations for this combination of DION and DSC values are that one or more anion concentrations are too small or that one or more anions were not included in the analyses.

Comparisons of summer and winter cation-to-anion ratios indicate that summer median ratios are consistently larger than winter median ratios (fig. 12).

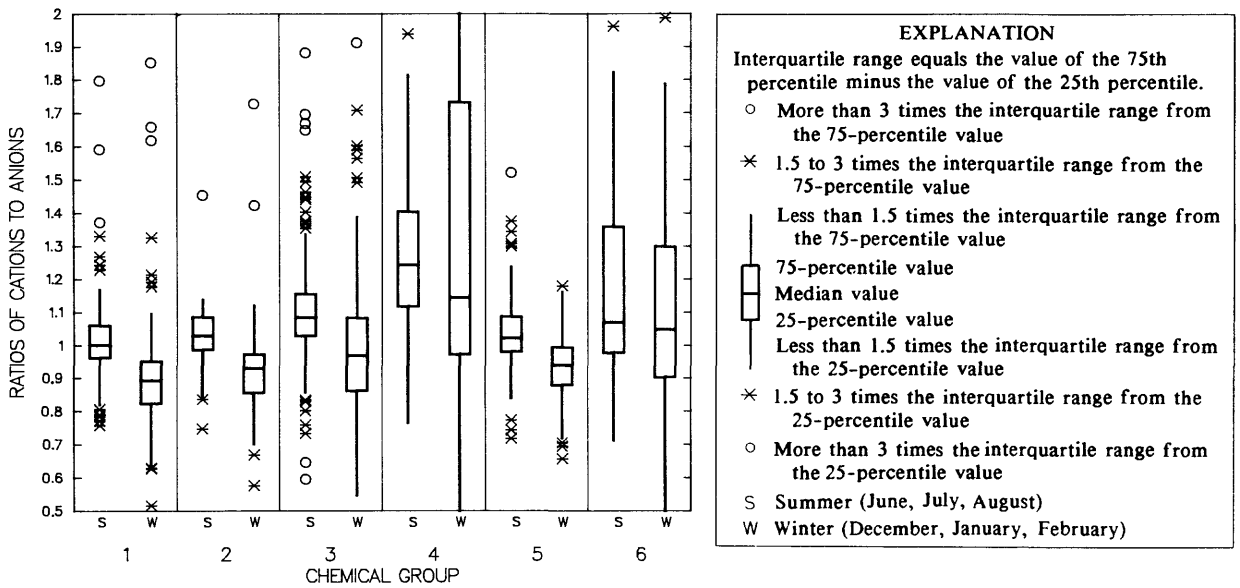


Figure 12.--Comparison of summer and winter ionic ratios of cations to anions by chemical group. Some extreme values are not shown.

In all chemical groups except group 4, the median ratios for both the summer and winter analyses are plus or minus 0.1 units of 1.0. At group 4 sites, the majority of ratios are considerably above 1.0 and indicate that larger measured concentrations of cations than of anions occur for both the summer and winter analyses.

Sulfate-to-nitrate ratios

Variations in sulfate-to-nitrate equivalent ratios in precipitation may reflect the type of fuel consumed or types of industrial processes that are occurring in various chemical groups throughout the United States. Largest median ratios of sulfate to nitrate occur at the eastern coastal sites (group 5) and gradually decrease toward the West (group 6; fig. 13). Median ratios at the western coastal sites are about 75 percent of those at the eastern sites, a difference which agrees with the fact that eastern energy sources contain larger sulfur concentrations than energy sources in the western United States. The larger interquartile range in the western coastal region could be indicative of sulfate from ocean influences (Laird and others, 1986). The smallest ratios are observed at group 4 sites, the region that had the largest pH values in the weekly precipitation samples.

Sulfate-to-nitrate ratios tend to vary from summer to winter months (fig. 14), although both the summer and winter ratios tend to decrease from the eastern to the western chemical groups. At group 1 and 2 sites, the ratios during the summer tend to be larger than those during the winter; at group 3, 4, and 6 sites, the ratios during the summer and winter are similar; and at group 5 sites, the summer ratios are slightly smaller than those during the winter. At group 1 and 2 sites, the smaller ratios during the winter result from smaller winter concentrations of both sulfate and nitrate, although the nitrate values do not decline nearly as much as the sulfate concentrations. Reasons for the large winter decline in sulfate concentrations are not apparent; dilution does not appear to be significant, as the weekly precipitation quantities are seasonally similar. The summer and winter sources of nitrate at group 1 and 2 sites appear to be relatively constant, compared to summer and winter sources of sulfate.

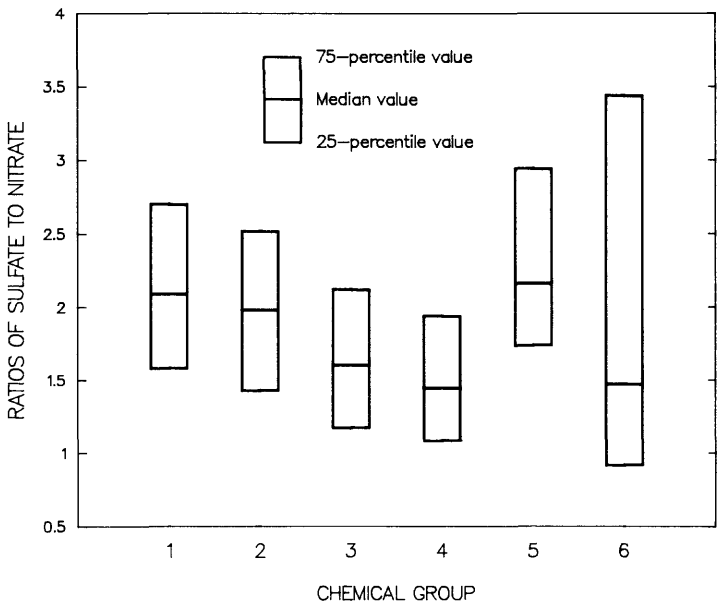


Figure 13.--Comparison of ionic ratios of sulfate to nitrate concentrations in weekly precipitation samples by chemical group.

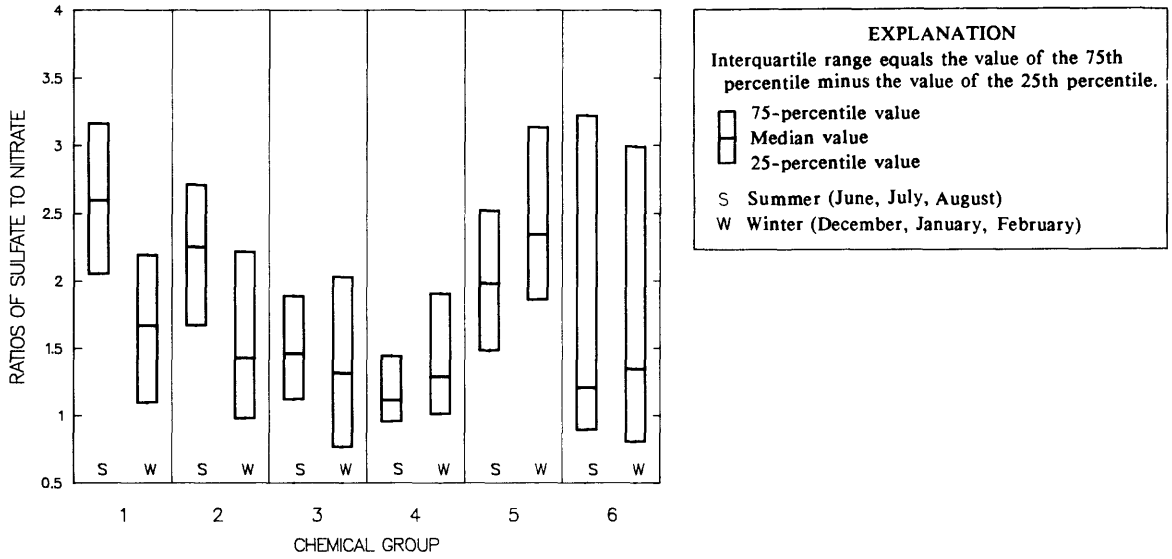


Figure 14.--Comparison of ionic ratios of sulfate to nitrate concentrations by chemical group. Only the quartile values are shown.

One hypothesis for the relatively constant nitrate concentrations in precipitation is that the increased consumption of heating fuels during the winter months produces oxides of nitrogen emissions that compare to emissions resulting from the increased fuel consumption for transportation and electrical needs during the summer months. Concentrations of sulfate and nitrate at group 3, 4, and 6 sites are smaller than those at group 1 and 2 sites. These concentrations at group 3, 4, and 6 sites decline similarly from summer to winter, so that ratios during summer and winter are relatively constant. The eastern coastal sites may have larger ratios because of the region's proximity to group 1 sites.

Acid-related Chemical Species

Of particular interest among the ions measured in precipitation are those associated with acidity. Two major components of acidity in precipitation are sulfuric and nitric acids (U.S. Environmental Protection Agency, 1980). In wet deposition, these acids dissociate to anions of sulfate and nitrate and to cations of hydrogen (often referred to as the hydronium ion). An examination of the equivalent ratios of various combinations of these acid-forming chemical species in precipitation may help to determine atmospheric chemical processes.

Ion ratios of sulfate to hydrogen for the six chemical groups in the United States are generally greater than 1.0 (fig. 15a). Ratios greater than 1.0 show that sulfate concentrations are large enough to electrically balance the hydrogen-ion concentrations and indicate that (1) some of the sulfate ions were associated with cations other than the hydrogen ion, or (2) some of the hydrogen ions that originated from sulfuric acid were neutralized by such constituents as ammonia or bicarbonate. The sulfate-to-hydrogen ion ratio tends to be inversely related to the hydrogen-ion concentration. Group 4 sites have the largest ratios (generally larger than 4.0) and the smallest hydrogen-ion concentrations; conversely, group 1 sites have the smallest ratios (near 1.0) and have among the largest hydrogen-ion concentrations.

As with sulfate, the largest ratios of nitrate to hydrogen ions occur at group 4 sites, and the smallest ratios occur at group 1 sites (fig. 15b). Ratios are greater than 1.0 for group 3, 4, and 6 sites, whereas ratios are less than 1.0 for group 1, 2, and 5 sites. In areas where the ratio is greater than 1.0, nitrate may have been associated with cations other than hydrogen-ion or some of the hydrogen ions that originated from nitric acid were neutralized by some other constituent.

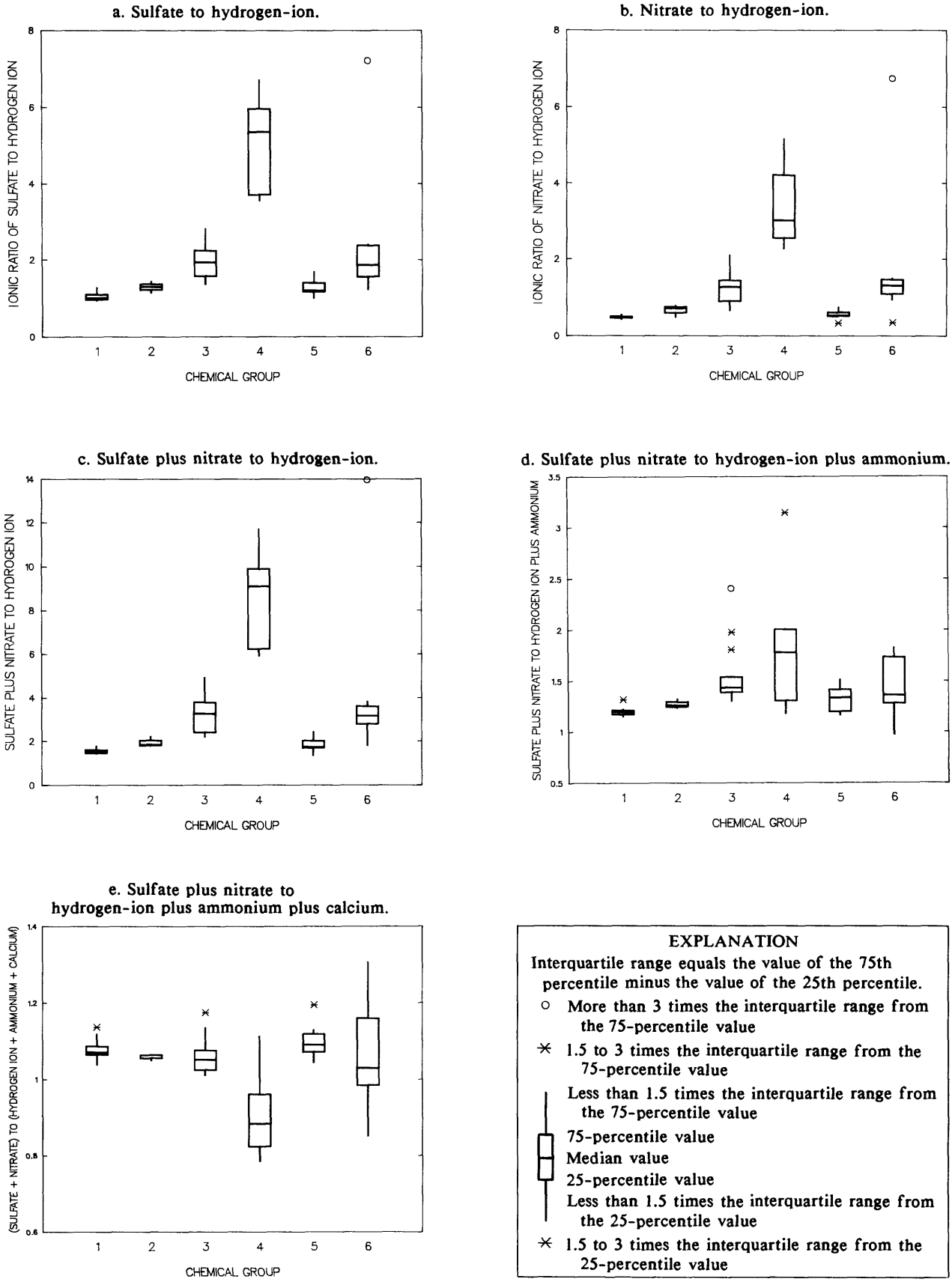


Figure 15.--Comparison of annual volume-weighted mean ionic ratios by chemical group.

Because the hydrogen ion equivalents are insufficient to balance the sulfate-plus-nitrate equivalents (fig. 15c; ratios are above 1.0 in all chemical groups), other cations needed to electrically balance the equivalents of sulfate-plus-nitrate were examined. When the ammonium was added to the hydrogen ion, the ratios were substantially reduced, especially for group 4 sites (fig. 15d). With the addition of the ammonium, ratios were generally less than 2.0, and in most instances median ratios were less than 1.5. The ammonium could have been directly associated with one of the anions, such as sulfate (from an ammonium sulfate source), or ammonia could have neutralized hydrogen ions. Even though the most dramatic change occurred at group 4 sites (fig. 15c compared to fig. 15d), each of the chemical groups showed reductions. Reductions were pronounced at group 3 and 6 sites. These results indicate that ammonia may partly account for the lower hydrogen-ion concentrations observed at group 3, 4, and 6 sites. Although the addition of the ammonium changed the ratios considerably, all chemical groups still have ratios above 1.0.

Of the remaining measured cations (calcium, magnesium, potassium, and sodium), each was used separately to reduce the remaining ratio closer to 1.0. Results of the inclusion of all cations except calcium were essentially the same as shown in figure 15d and indicate that these cations had minimal effect. Addition of calcium reduced the ratios for each of the chemical groups (fig. 15e). Resulting ratios near 1.0 indicate either that calcium was associated with one of the anions (sulfate or nitrate), or that calcareous material may be neutralizing some of the hydrogen-ion concentrations. All chemical groups have slight positive biases (median ratios slightly less than 1.1), except group 4, which has a slight negative bias (median ratio near 0.9).

Ratios of acid-related species suggest that at some chemical groups (particularly 3 and 4) the neutralizing effects of ammonia and calcareous materials may partially account for the smaller observed hydrogen-ion concentrations. Consequently, the hydrogen-ion concentrations at group 1 sites may be large not only because of significant sources of oxides of sulfur and nitrogen, but also because of a lack of airborne ammonia and calcareous material.

In the presence of source loadings of ammonia, the loading of hydrogen ions, as determined from pH and precipitation quantity, may not be accurately reflecting the magnitude of the hydrogen-ion load to soils. Ammonia increases the pH of precipitation, but in the soil zone the hydrogen ion bound to ammonium may be released by oxidation of ammonium, causing a greater acidification than would occur if precipitation of the same pH did not contain ammonium (Junge, 1958).

RELATIONS BETWEEN QUANTITY AND CHEMISTRY OF PRECIPITATION

Kendall Tau Correlation and Regression Analysis Techniques

Chemical concentrations in precipitation are related to many factors, including the type and location of pollutant sources, ambient chemical loadings, chemical characteristics, and atmospheric reactions. Another important factor is the quantity of precipitation passing through the atmosphere and coming in contact with gases, aerosols, and particulates. As precipitation quantities increase, the finite supply of airborne chemicals may be removed and subsequently diluted, causing decreases in the overall chemical concentrations in precipitation.

To explore relations between chemical concentrations in weekly precipitation samples and the quantity of weekly precipitation, correlation coefficients in the form of the Kendall Tau statistic (Conover, 1980) were computed for each constituent at each NTN site (results shown in Appendices II and III). Positive correlations indicate that as precipitation quantities increase, chemical concentrations increase. Negative correlations indicate that as precipitation quantities increase, chemical concentrations decrease.

Regression analyses were used to examine and develop quantitative relations between precipitation quantity and selected chemical concentrations among the chemical groups. Correlation analysis (in the previous section) was used to determine the degree to which the variables precipitation quantity and chemical concentrations were related. The primary goal of the regression analyses was to develop equations to (1) compute mean predicted values of chemical concentrations for specific precipitation quantities and (2) make regional comparisons.

Two terms used in this report to describe the error in a regression equation are the coefficient of determination, r^2, and the standard error of estimate, SE (Draper and Smith, 1981). The coefficient of determination is a measure of how well the equation fits the data. This coefficient, times 100, is defined as the percent of dependent-variable variation explained by the equation. The standard error of estimate is a measure of the variance about the regression. For example, a standard error of estimate of 0.20 log units would indicate that approximately two-thirds of the measured values would fall within plus or minus 0.20 log units from the predicted value.

Table 8.--Computed Kendall Tau statistic between precipitation quantity and chemical concentrations in weekly precipitation samples

This table shows the percentages of NTN sites in each chemical group with Kendall Tau coefficients that are significantly correlated at at the 90-percent confidence level (p-level < 0.10). "P" indicates the percentage of sites with positive correlations, and "N" indicates the percentage of sites with negative correlations; for example, 68 percent of the 31 sites in chemical group 1 have negative correlations between precipitation quantity and specific conductance, and 0 percent of the 31 sites had positive correlations.

Chemical group	Total number of sites in group	Percent of the National Trends Network sites in each chemical group									
		Lab specific conductance	Hydrogen ion	Calcium	Magnesium	Sodium	Potassium	Ammonium	Chloride	Nitrite plus nitrate	Sulfate
1	31	68 N	39 N	94 N	87 N	68 N	84 N	64 N	71 N	87 N	81 N
		0 P	0 P	0 P	0 P	0 P	0 P	0 P	0 P	0 P	0 P
2	10	50 N	20 N	90 N	100 N	80 N	100 N	50 N	80 N	100 N	60 N
		0 P	0 P	0 P	0 P	0 P	0 P	0 P	0 P	0 P	0 P
3	23	61 N	9 N	91 N	100 N	96 N	78 N	39 N	91 N	87 N	65 N
		0 P	43 P	0 P	0 P	0 P	0 P	0 P	0 P	0 P	0 P
4	13	92 N	8 N	92 N	85 N	92 N	77 N	38 N	92 N	85 N	92 N
		0 P	69 P	0 P	8 P	0 P	8 P	0 P	0 P	0 P	0 P
5	16	94 N	50 N	94 N	88 N	50 N	81 N	69 N	44 N	100 N	94 N
		0 P	6 P	0 P	0 P	0 P	0 P	0 P	0 P	0 P	0 P
6	13	69 N	23 N	100 N	54 N	46 N	85 N	54 N	54 N	85 N	92 N
		0 P	8 P	0 P	0 P	8 P	0 P	0 P	0 P	0 P	0 P

Results of Analysis

Results of the correlation analysis (table 8) indicate that most chemicals in weekly precipitation samples, except hydrogen-ion concentrations, are negatively correlated with precipitation quantities. In addition, most of the correlations that were not significant (p-levels greater than 0.1) had positive Kendall Tau coefficients. Hydrogen was generally the only chemical constituent to show positive correlations with precipitation quantity; these positive correlations were predominant of group 3 and 4 sites. Group 2 and 6 sites that border group 3 and 4 sites showed the fewest significant correlations.

Results of the regression analyses show an inverse curvilinear relation between the variables, indicating that chemical concentrations decrease as precipitation quantities increase (fig. 16). The reason for an inverse relation is that the initial quantities of precipitation can efficiently remove a large amount of chemical constituents from the atmosphere. This removal process produces wide variations in chemical concentrations for small precipitation quantities, and the chemical concentrations in precipitation depend upon the level of chemical concentrations in the atmosphere. Large amounts of precipitation dilute the concentration of chemicals in the weekly samples. The dilution caused by increasing amounts of precipitation continues until chemical concentrations approach ambient baseline concentrations.

To aid in the evaluation of these inverse relations, the data were plotted on log-log diagrams and fitted with least squares regression lines (figs. 17a and 17b; table 9). Chemical concentrations reported below the analytical detection level were included in the calculations as values equal to one-half the detection level.

Regression equations that are based on the logarithms of variables will underestimate the predicted mean value of the dependent variable (chemical concentrations) for any fixed value of the independent variable (precipitation quantity); therefore, a correction factor (one-half of the square of the standard error of estimate) has been added to the predicted values shown in table 9 (Ferguson, 1986).

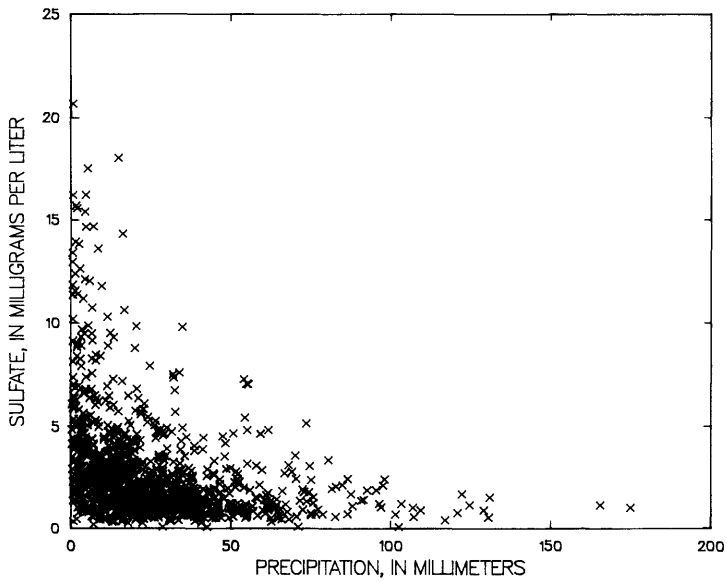


Figure 16.--Sulfate concentrations as a function of precipitation amounts for chemical group 1 sites.

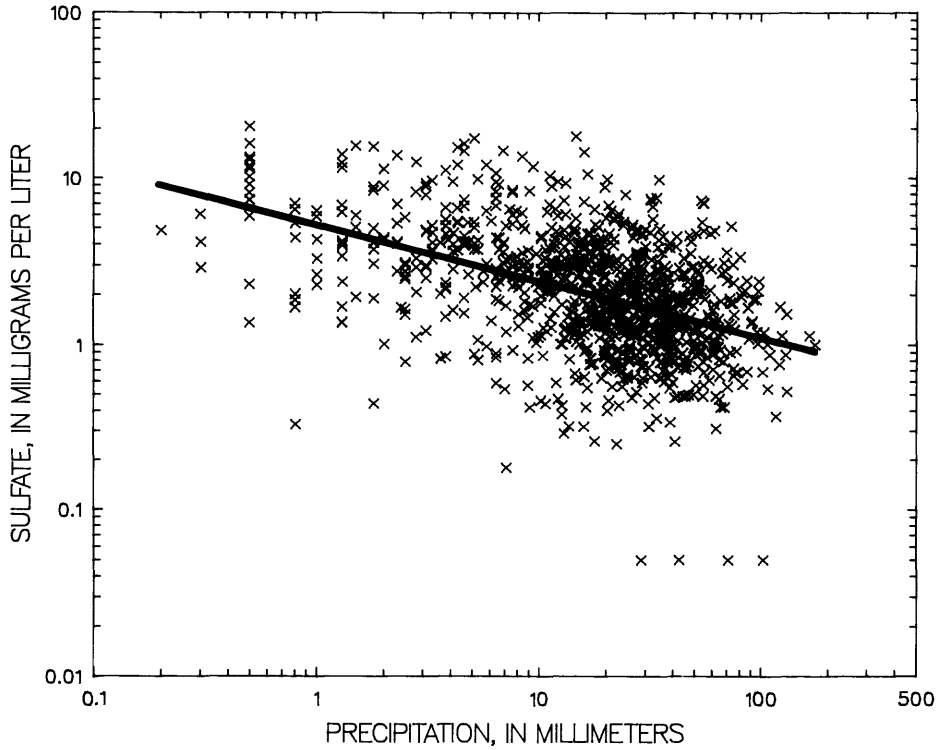


Figure 17a.--Logarithmic relation between sulfate concentrations and precipitation amounts for weekly samples collected from chemical group 1 sites.

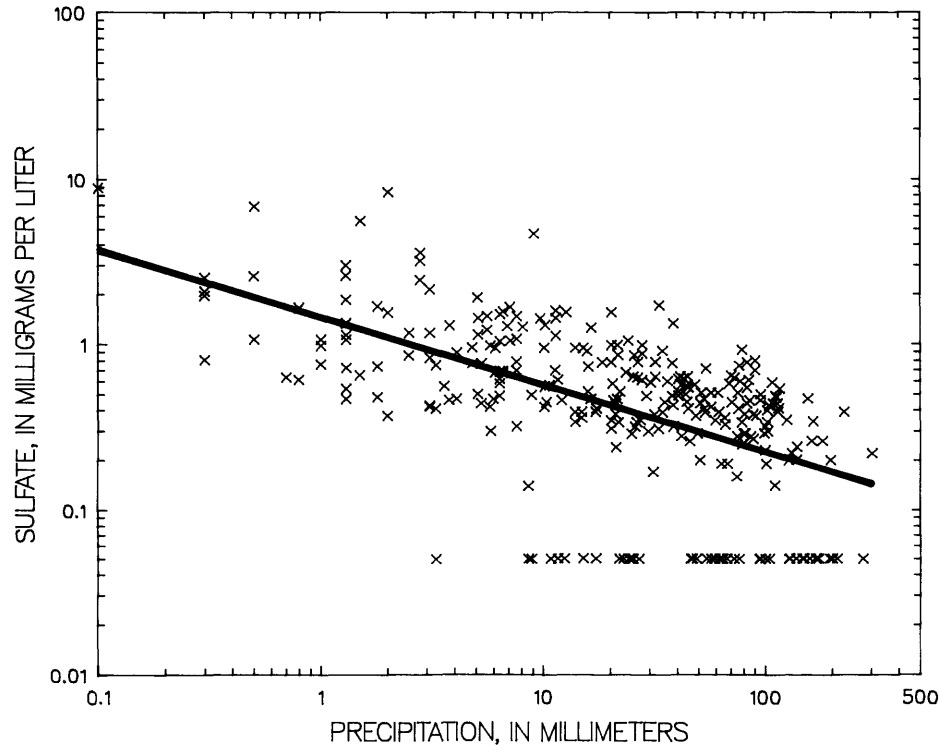


Figure 17b.--Logarithmic relation between sulfate concentrations and precipitation amounts for weekly samples collected from chemical group 6 sites (western coastal sites).

Except the calcium, the regression equations for each of the ions had small r^2 values (table 9). The small r^2 values in many cases reflect the large amount of variability in the data and the fact that precipitation quantity may not be a good predictor of concentration for several ions. Calcium exhibited the best relation with precipitation quantity, possibly because the major source of calcium (windblown soil) is considerably reduced (because of high soil moisture) during the period of a year when precipitation quantities tend to be largest.

Table 9.--Regression relations between selected chemical concentrations and precipitation quantities

The form of the regression equation is: ln C = ln a + b [ln Q], where C = chemical concentration, in milligrams per liter; "a" is the regression constant and "b" is the regression coefficient; and Q = precipitation quantity, in millimeters. SE = standard error of estimate, in log units; r^2 = coefficient of determination; p-level = probability level; "N" = the number of data pairs of precipitation quantity and constituent concentration.

Chemical group	N	Equation coefficients ln a	b	SE	r^2	P-level
			Hydrogen ion			
1	929	-2.94	-0.147	1.006	0.03	0.0001
2	283	-3.55	0.017	1.007	.00	.73
3	684	-5.69	0.326	1.355	.09	.0001
4	316	-6.78	0.308	1.159	.10	.0001
5	427	-3.66	-0.118	1.188	.01	.0072
6	295	-5.64	0.001	1.023	.00	.98
			Sulfate			
1	929	1.65	-0.338	0.757	0.21	0.0001
2	283	1.54	-.271	.607	.22	.0001
3	684	.645	-.199	.871	.08	.0001
4	316	.726	-.306	.825	.18	.0001
5	427	1.48	-.366	.584	.41	.0001
W	295	.351	-.405	.921	.32	.0001
			Nitrite plus nitrate			
1	929	1.43	-0.424	0.750	0.30	0.0001
2	283	1.42	-.363	.577	.35	.0001
3	684	.626	-.277	.865	.15	.0001
4	316	.580	-.282	.839	.15	.0001
5	427	1.10	-.441	.804	.34	.0001
6	295	-.120	-.384	1.36	.16	.0001
			Ammonium ion			
1	929	-0.912	-0.365	1.23	0.10	0.0001
2	283	-.534	-.295	1.04	.10	.0001
3	684	-1.52	-.114	1.31	.01	.0032
4	316	-1.14	-.059	1.31	.00	.32
5	427	-1.07	-.362	1.16	.14	.0001
6	295	-1.90	-.340	1.49	.11	.0001
			Calcium			
1	929	-0.130	-0.688	0.731	0.54	0.0000
2	283	-.096	-.550	.755	.42	.0000
3	684	-.288	-.492	.907	.33	.0000
4	316	-.132	-.485	.881	.32	.0000
5	427	-.291	-.620	.653	.61	.0000
6	295	-.684	-.617	.712	.65	.0000

Predicted values from the regression analysis provide an estimate of the lower baseline concentrations for each of the chemical groups (table 10). Baseline concentrations are not considered to be background (meaning without man's influence), but instead represent the lowest expected mean concentration for a chemical group in 1983. Baseline values are estimated as being associated with a precipitation amount of 400 mm, which is about the maximum precipitation quantity measured for samples in 1983 (constituent values associated with 200 mm of precipitation were similar to those values associated with 400 mm). Baseline concentrations at most of the western coastal sites (group 6) show minimal direct influences by man because airflow is generally from the Pacific Ocean.

Precipitation quantity accounts for a small amount of the variation observed in the weekly pH values within a chemical group. Perhaps r^2 values would increase if regressions were computed on storm-event data that were analyzed separately for each site. Results (table 10) of the regression between precipitation quantity and hydrogen-ion concentration show that the group with the largest baseline pH value is chemical group 6 (western coastal sites). The regressions for group 1 and 5 data show positive relations between pH and precipitation quantity, those for groups 3 and 4 show negative relations, and those for groups 2 and 6 show no relation. The regression for group 6 data may be showing no relation because influences by man are minimal.

The concentration of hydrogen ions is inversely related to pH: as the concentration increases, pH values decrease. The positive relation between pH and precipitation quantities at group 1 and 5 sites is, therefore, consistent with the theory that as precipitation quantities increase, the finite supply of airborne hydrogen ions may be removed and subsequently diluted. The rationale for the statistically significant negative relations between pH and precipitation quantities at group 3 and 4 sites is not known, but the negative relations could be associated with relatively large decreases in acid-neutralizing anions as precipitation quantities increase. Both of the major acid-related constituents, sulfate and nitrate, evidently do decrease with increasing precipitation. Baseline nitrate levels are about 0.5 mg/L, for interior regions of the United States, and about 0.2 to 0.3 mg/L for coastal areas. Baseline sulfate levels reflect areas of high fossil fuel consumption, with values for group 1 and 2 sites being about 4 to 5 times the 0.2-mg/L level for group 6 sites.

Predicted ammonium-ion concentrations associated with 400 mm of precipitation varied considerably among the chemical groups. Coastal sites had small values and group 4 sites had the largest concentrations (livestock wastes, fertilizer, and soil pH may contribute to large ammonium concentrations in region 4). The fact that concentrations changed the least with precipitation at group 3 and 4 sites may indicate a relatively large ammonia source. Calcium concentrations dropped considerably with increasing precipitation. As noted earlier, calcium had the best relation with precipitation quantity. Group 3 and 4 sites had the largest baseline values, coincident with largest ammonium concentrations. The larger concentrations of calcium at group 3 and 4 sites probably reflect the windblown soil particulate contributions from agricultural activities. Baseline calcium concentrations are about 0.03 mg/L in all groups, except 3 and 4, where baseline concentrations are about 0.06 mg/L.

Table 10.--Predicted precipitation chemistry for selected precipitation quantities

The equations shown in table 9 were used to calculate the predicted chemical concentrations. The predicted hydrogen-ion concentrations, in milligrams per liter, were converted to pH values in this table.

Chemical group	Precipitation quantity, in millimeters						
	0.3	1	10	50	100	200	400
	pH, in pH units						
1	3.98	4.06	4.20	4.31	4.35	4.40	4.44
2	4.33	4.32	4.30	4.29	4.29	4.28	4.28
3	5.24	5.07	4.75	4.52	4.42	4.32	4.22
4	5.81	5.65	5.34	5.13	5.04	4.94	4.85
5	4.22	4.28	4.40	4.48	4.52	4.55	4.59
6	5.22	5.22	5.22	5.22	5.22	5.22	5.22
	Sulfate, in milligrams per liter						
1	10.4	6.92	3.18	1.84	1.46	1.15	0.91
2	7.73	5.58	2.99	1.93	1.60	1.33	1.10
3	3.54	2.78	1.76	1.28	1.11	0.97	.84
4	4.20	2.91	1.44	.88	0.71	.57	.46
5	8.08	5.20	2.23	1.24	.96	.74	.58
6	3.54	2.17	.86	.44	.34	.25	.19
	Nitrite plus nitrate, in milligrams per liter						
1	9.26	5.56	2.09	1.06	0.79	0.59	0.44
2	7.59	4.90	2.13	1.19	.92	.72	.56
3	3.79	2.72	1.44	0.92	.76	.63	.52
4	3.57	2.54	1.33	.84	.69	.57	.47
5	7.03	4.13	1.50	.74	.54	.40	.29
6	3.54	2.23	0.92	.50	.38	.29	.22
	Ammonium ion, in milligrams per liter						
1	1.32	0.85	0.37	0.20	0.16	0.12	0.10
2	1.44	1.01	.51	.32	.26	.21	.17
3	0.59	.52	.40	.33	.30	.28	.26
4	.81	.75	.66	.60	.57	.55	.53
5	1.05	.68	.29	.16	.13	.10	.08
6	.68	.45	.21	.12	.09	.07	.06
	Calcium, in milligrams per liter						
1	2.63	1.15	0.23	0.08	0.05	0.03	0.02
2	2.34	1.21	.34	.14	.10	.06	.04
3	2.04	1.13	.36	.16	.12	.08	.06
4	2.32	1.29	.42	.19	.14	.10	.07
5	1.95	.92	.22	.08	.05	.03	.02
6	1.37	.65	.16	.06	.04	.02	.02

The baseline chemical concentrations in precipitation for the six chemical groups (table 10) were compared to the chemical concentrations in precipitation measured at five remote sites around the world. These remote sites are located in Alaska, Australia, Bermuda, South Indian Ocean, and Venezuela. Effects of man's activities on precipitation chemistry at these remote sites were expected to be minimal, and the data from these sites used for this comparison were collected from December 3, 1979, to May 1, 1981 (Calloway and others, 1982). The median volume-weighted concentrations of sulfate, nitrate, and ammonia at the remote sites (0.34, 0.16, 0.038 milligrams per liter respectively) are most similar to those baseline concentrations (0.19, 0.22, and 0.06 milligrams per liter respectively; listed in table 10) for chemical group 6 (western coastal sites). The baseline concentrations for the other chemical groups were generally more than twice those concentrations at the remote sites. The median pH for the remote sites (pH - 4.81, based on the median of the volume-weighted hydrogen-ion concentrations) was most similar to the baseline pH of chemical group 5. Except for group 6, which has a baseline pH (pH - 5.22) slightly larger than the median pH of the remote sites, the baseline pH values of the other chemical groups were all smaller (smaller pH values indicate larger hydrogen-ion concentrations). These comparisons indicate that, for large precipitation quantities, the chemical concentrations at the western coastal sites in chemical group 6 are minimally influenced by man's activities and tend to be most representative of median chemical concentrations at remote sites around the world.

SUMMARY

Frequency distributions of precipitation-chemistry data for the 1983 calendar year are tabulated for 10 measured chemicals in precipitation and for precipitation quantities from 109 NTN sites in the United States. Generally, the constituent concentrations in precipitation vary widely from site to site. Data from the NTN sites and from 28 CANSAP sites were screened against a set of criteria to insure the representativeness of precipitation samples. Subsequently, each site was evaluated under four criteria to insure representative data coverage for the year. Application of screening criteria reduced the data set to 55 NTN and 18 CANSAP sites. The data from these 73 sites were used to construct maps that show annual mean volume-weighted concentrations and annual loads in precipitation for several chemicals for the conterminous United States. An interpolation technique (Kriging) was used to delineate lines of equal constituent concentrations nationwide. These maps show that the largest chemical concentrations and loads in precipitation are found mostly in the geographic areas of the highly industrialized and densely populated northeastern United States. Ammonium and calcium concentrations in precipitation were largest in the agricultural midwest and plains states.

Trilinear diagrams of chemical ionic concentration were used to group NTN data into six chemical groups. The groups, each having precipitation with a distinctive chemical composition, are located in well-defined geographical areas. The chemical groups show influences on precipitation chemistry from the following sources: proximity of sites to the oceans, proximity of sites to the major industrial and fossil-fuel consuming areas, and proximity of sites to the major areas of agricultural activity.

Finally, selected ionic ratios in precipitation were examined for each chemical group. Cation-to-anion ratios generally were between 0.9 and 1.1, but group 4 sites had a positive bias, with a ratio of about 1.2. The most likely cause of a high cation-to-anion ratio is that one of the anion determinations is consistently biased low or that one of the anions is not being determined. Ratios of sulfate to nitrate in precipitation are much larger in chemical groups 1 and 2 than in group 6 (western coastal sites). Regional differences in sulfate-to-nitrate ratios may reflect differences in the type of fossil fuel consumption; eastern regions may exhibit larger sulfate concentrations because of greater consumption of high-sulfur coal. Large hydrogen-ion concentrations in milliequivalents per liter (groups 1 and 2) were approximately balanced by sulfate-plus-nitrate ion concentrations. For chemical groups that have small hydrogen-ion concentrations (groups 3 and 4), ammonium and calcium-ion concentrations, along with hydrogen-ion concentrations, are necessary to ionically balance the sulfate-plus-nitrate concentrations. Thus ammonium and calcium in precipitation may partly account for the high pH values in chemical groups 3 and 4 because they may have neutralized some of the hydrogen ions.

Constituent concentrations in precipitation and precipitation quantity relations were evaluated by using correlation and regression analysis. Kendall Tau correlation analysis indicated that significant (ρ-level <0.10) negative correlations between constituent concentrations in precipitation and precipitation quantity occur at most of the NTN sites for the following constituents: specific conductance, calcium, magnesium, sodium, potassium, chloride, nitrite plus nitrate, and sulfate. Although significant correlations for ammonium were all negative, almost 50 percent of sites showed that ammonium in precipitation and precipitation quantity were not significantly correlated. Correlations between the pH of precipitation and precipitation quantity generally were negative for chemical groups 3 and 4 and were positive for groups 1 and 5. Few significant correlations between hydrogen ion in precipitation and precipitation quantity were observed in chemical groups 2 and 6. These few significant correlations may be found in chemical group 6 (western coastal sites) because of minimal influences by man and the relative uniformity of ambient air quality over the Pacific Ocean. Regression analysis indicated that precipitation quantities collected on a weekly basis account for a small amount of the variation observed in the corresponding concentrations of most constituents in precipitation, especially hydrogen. Calcium was the only exception. Precipitation quantity accounted for more than 30 percent of the calcium variation in precipitation, possibly because of increased dilution of samples and the effects of soil moisture. Increased soil moisture reduces the availability of windborne calcareous-soil particulates in the atmosphere.

The baseline chemical concentrations in precipitation for the six chemical groups in the conterminous United States were compared to chemical concentrations in precipitation measured at five remote sites around the world. These comparisons indicate that, for large precipitation quantities, the chemical concentrations at the western coastal sites in chemical group 6 are minimally influenced by man's activities and tend to be most representative of median chemical concentrations at remote sites around the world.

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APPENDIX I: DESCRIPTION OF STATISTICAL COMPUTATIONS, TABLES, AND FIGURES FOR INDIVIDUAL STATION SUMMARIES

Chemical analyses of the weekly composited precipitation samples collected in calendar year 1983 are summarized for each of the National Trends Network sites. Laboratory analytical results reported in this section are specific conductance, pH, ammonium, calcium, magnesium, potassium, sodium, chloride, nitrite plus nitrate, and sulfate. Analyses of each of the weekly composited precipitation samples are available in the 1983 National Atmospheric Deposition Program Quarterly Reports (National Atmospheric Deposition Program, 1985). The quarterly reports also include determinations of phosphate and field measurements of pH and specific conductance of precipitation. Phosphate determinations are not summarized in this report, because the majority of the reported concentrations are below the analytical detection limit of 0.003 mg/L.

Individual site data are summarized in the Appendices II and III. One section includes those sites that have complete precipitation-chemistry records in 1983 (as defined by criteria outlined earlier in the report); the other site-summary section includes those sites having partial precipitation-chemistry records (site data not meeting criteria for annual statistical computations, such as annual volume-weighted means and annual totals).

The following is a description of selected information, statistical computations, and figures for each NTN site shown in Appendices II and III:

(1) Station name -- NADP/NTN (National Atmospheric Deposition Program/National Trends Network) station name.

(2) CAL number -- Site code designated by the CAL (Central Analytical Laboratory) of Illinois State Water Survey in Champaign, Illinois. CAL analyzes precipitation samples for the NADP/NTN network.

(3) ADS number -- Site code used in the Acid Deposition System data repository system.

(4) Total measured ppt (precipitation) -- Total measured precipitation from the rain gage. Precipitation amounts from the precipitation (wet-deposition) sample bucket were substituted for missing rain-gage measurements.

(5) Distribution percentiles of selected constituents -- Percentiles provide a measure of the variability of the data. The tables show the 0 (minimum), 10, 25, 50 (median), 75, 90, and 100 (maximum) percentiles.

(6) Arithmetic mean -- Arithmetic mean is equal to the sum of constituent values divided by the number of measurements.

(7) Volume-weighted mean chemical concentration is computed as follows:

$$\text{Volume-weighted mean concentration} = \frac{\text{Sum of the products: constituent concentrations times the precipitation volumes for each sample}}{\text{Sum of the precipitation volumes for each sample}}$$

Precipitation volumes for each sample are from the rain gage; precipitation amounts from the precipitation (wet-deposition) sample bucket are substituted for missing rain-gage measurements.

Precipitation volume-weighted means correspond to chemical concentrations that would occur in annual-composited, precipitation samples, assuming that chemical species are conservative.

For volume-weighted pH values, each pH value was first converted to a hydrogen-ion concentration, using the equation:

$$(H^+), \text{ in moles per liter} = 10^{-pH}.$$

The volume-weighted mean hydrogen-ion concentration was computed (using the above equation) and then converted back to a pH value.

(8) Total load -- The total constituent load is computed based on the annual mass of the chemical constituent that collects in the precipitation (wet-deposition) bucket. The chemical mass is the sum of the products of the rain-gage amounts and chemical concentration for each precipitation sample. The rain-gage amount is the predicted volume of precipitation (based on the rain-gage depth) that would have collected in the precipitation-sample bucket.

(9) Kendall tau correlations -- A nonparametric statistic that shows the degree of association between precipitation quantities and chemical concentrations in wet deposition. Positive Kendall tau coefficients show a positive relation between precipitation quantities and chemical concentrations in precipitation (as precipitation quantities increase, chemical concentrations increase); negative coefficients show negative relations between precipitation quantities and chemical concentrations in precipitation (as precipitation quantities increase, chemical concentrations decrease).

(10) Percentiles of volume-weighted means -- Percentile distributions for volume-weighted means were computed for the 55 sites that met criteria for having complete precipitation-chemistry records for 1983. These percentiles are graphically shown for each volume-weighted mean for each site (that had complete records).

If a particular site has a mean volume-weighted mean sulfate concentration in precipitation that ranks at the 50th percentile, 50 percent of the 55 sites (27 sites) have volume-weighted mean nitrate concentrations less than or equal to the mean for the particular site, and 50 percent of the sites have volume-weighted mean sulfate concentrations greater than or equal to the mean for the particular site.

(11) Date bar plot of selected constituents -- Date bar plots show weekly rain-gage measurements and weekly concentrations of pH, sulfate, and nitrate for weekly precipitation samples from the 55 sites that had complete precipitation-chemistry records in 1983. The overlying line plots show cumulative constituent loads. Constituent loads are a function of rain-gage quantities and constituent concentrations. As quantity or concentration increase, the constituent load increases.

(12) Trilinear diagrams -- Diagrams that show the percentage composition of major cations and anions in precipitation for each site. Percentages are based on the percent of total equivalents per liter.

APPENDIX II:

Statistical Summaries for

Stations with Sufficient Data for Characterizing

Precipitation Chemistry in 1983

(Station summaries are ordered numerically by
Map ID numbers listed in table 1)

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

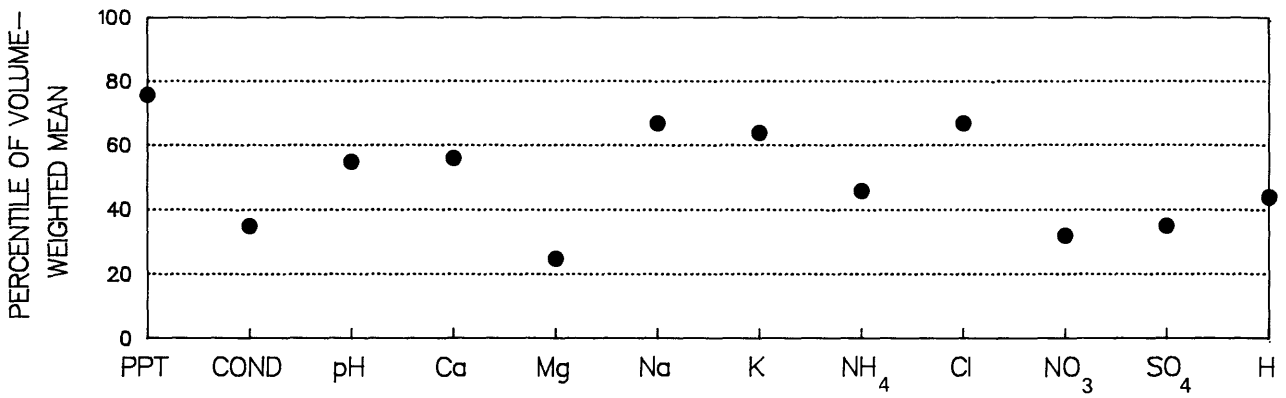
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Warren 2WSW, Arkansas — Latitude: 33°36'15" Longitude: 92°06'02"
CAL number: AR02 — Map ID number: 2
ADS number: 268a00
Station altitude above mean sea level, in meters: 78
Number of sampling intervals (days in parenthesis):

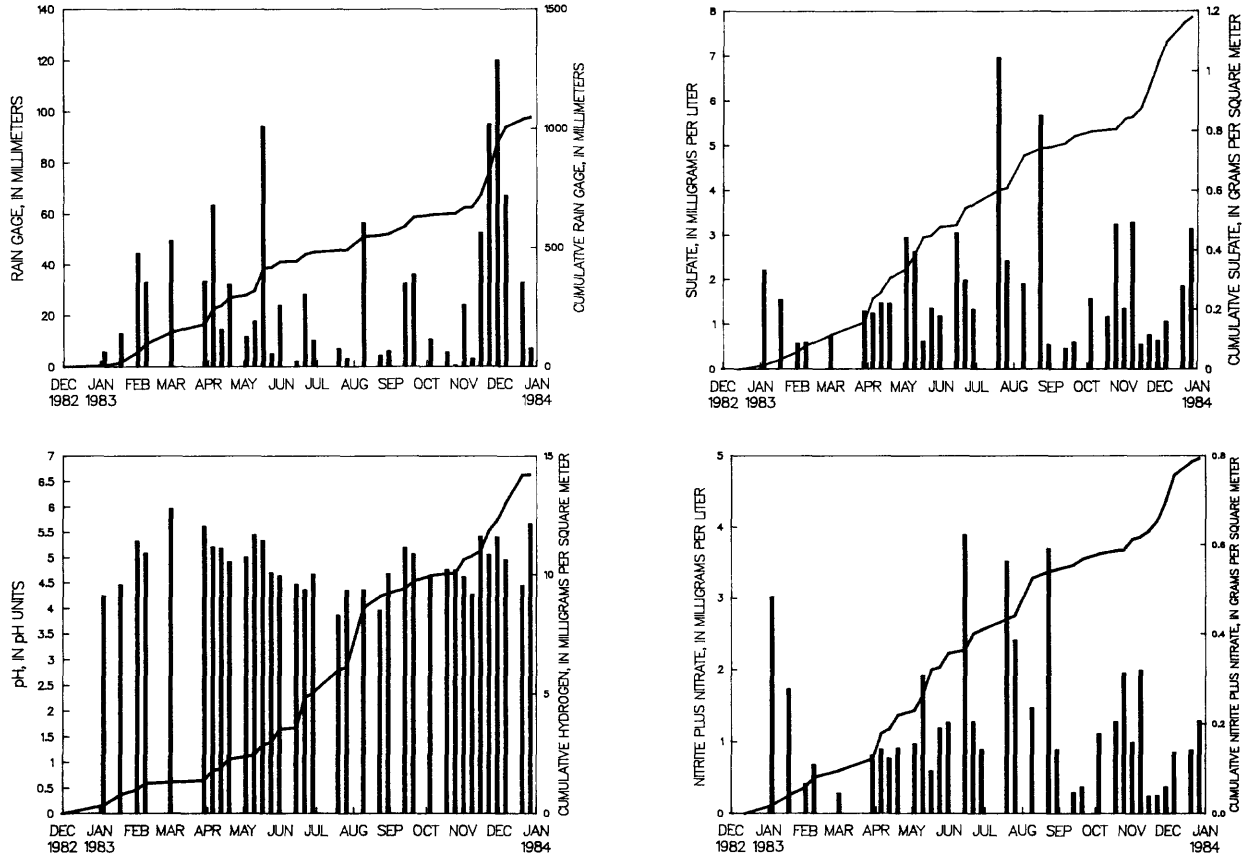
-- With ppt measurements:	52	(371)
-- When ppt occurred:	49	(350)
-- When ppt did not occur:	3	(21)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	35	(252)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 52 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 73.6
Percent of total measured ppt with chemical samples: 79.0
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 98.5
Total measured ppt, in mm: 1324.8

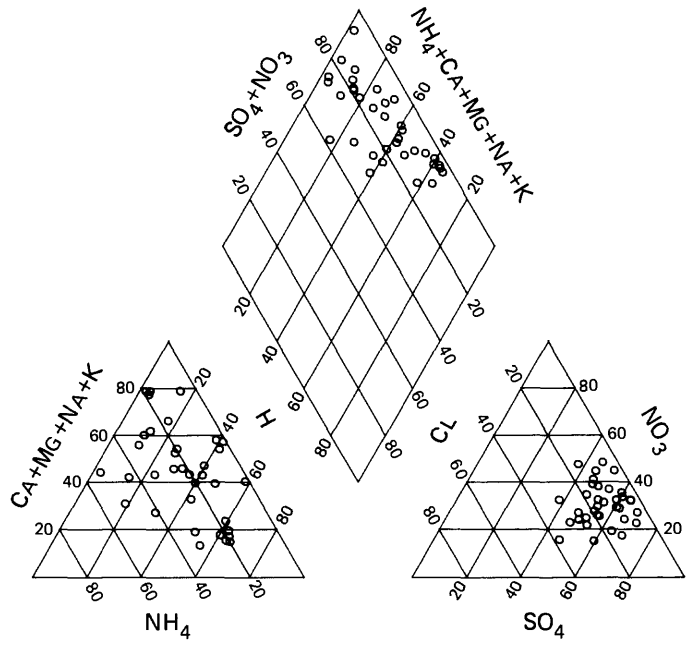
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	3.9	3.86	0.04	0.007	0.015	0.010	0.01	0.04	0.24	0.46	1.07E-03
10 percentile	.10	4.9	4.26	.04	.018	.064	.014	.04	.10	.29	0.56	3.09E-03
25 percentile	4.50	6.8	4.46	.10	.021	.087	.023	.10	.17	.68	0.72	6.17E-03
50 percentile	13.75	14.7	4.77	.18	.035	.154	.037	.20	.22	.97	1.35	1.70E-02
75 percentile	40.67	21.0	5.21	.36	.065	.206	.062	.31	.36	1.73	2.4	3.47E-02
90 percentile	63.35	36.0	5.52	.63	.099	.458	.103	.59	.57	3.21	3.26	5.52E-02
Maximum value	119.90	66.2	5.97	1.06	.250	.712	.177	1.18	1.02	3.89	6.95	1.38E-01
Volume-weighted mean	NA	10.4	4.87	.17	.031	.142	.034	.20	.23	.76	1.13	1.36E-02
Arithmetic mean	25.48	17.5	4.86	.27	.051	.197	.049	.27	0.29	1.30	1.81	2.47E-02
No. of samples	52	35	35	35	35	35	35	35	35	35	35	35
Total load, g/m2	NA	NA	NA	0.176	0.032	.149	.035	0.209	0.238	0.794	1.179	1.4E-02
Maximum interval load, g/m2	NA	NA	NA	.024	.003	.014	.005	.024	.023	.083	0.108	2.5E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.51	0.36	-.39	-.50	-.30	-.45	-.20	-.26	-.59	-.46	-0.36
P-level		.000	.002	.001	.000	.012	.000	.093	.028	.000	.000	.002



Percentiles of volume-weighted mean concentrations for site AR02, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site AR02. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site AR02.

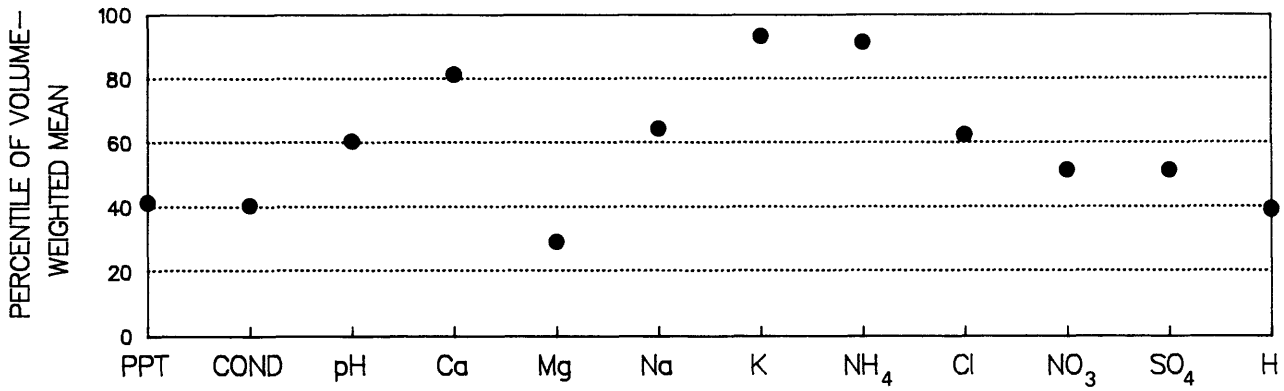
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

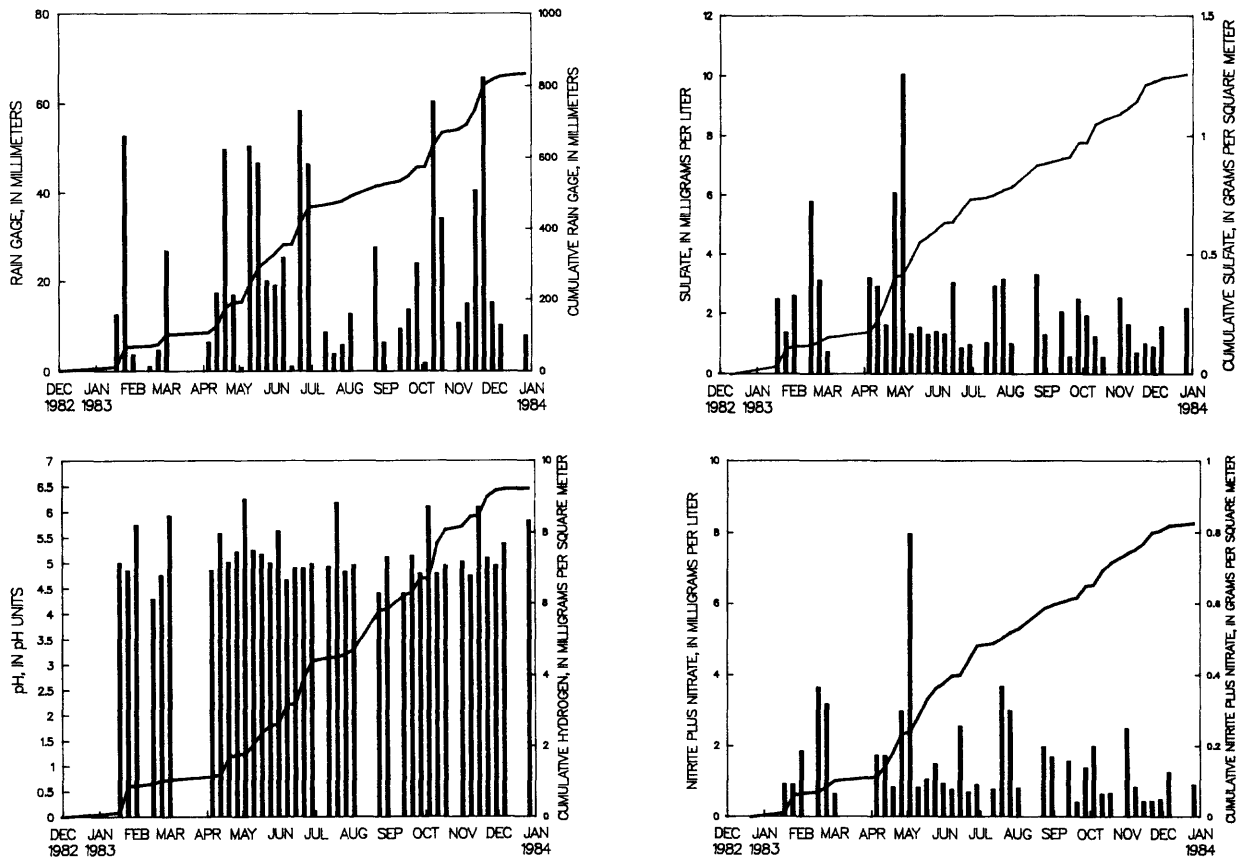
STATION: Fayetteville, Arkanses — Latitude: 36°06'02" Longitude: 94°10'24"
CAL number: AR27 — Map ID number: 4
ADS number: 004a00 — Station summery period: 12/28/1982 to 01/03/1984
Station altitude above mean sea level, in meters: 391 — Length of summary period: 53 sampling intervals (371 days)
Number of sampling intervals (days in parenthesis):
- -- With ppt measurements: 52 (364)
- -- When ppt occurred: 46 (322)
- -- When ppt did not occur: 6 (42)
- -- When sample volume was substituted for missing rain gage: 0 (0)
- -- With chemical samples: 38 (266)

Percent summary period with ppt measurements: 98.1
Percent summary period with chemical samples or no ppt: 83.0
Percent of total measured ppt with chemical samples: 92.1
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 87.5
Totel meesured ppt, in mm: 906.5

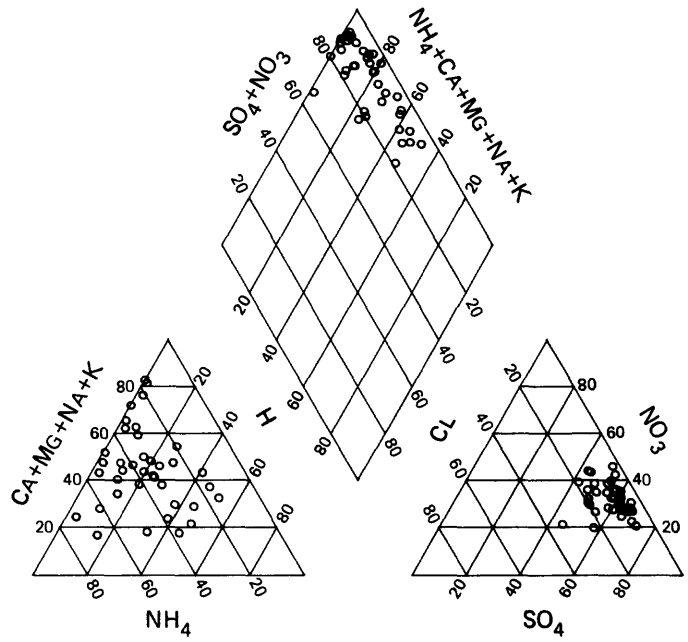
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Ne, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	5.4	4.29	0.05	0.011	0.029	0.010	0.05	0.05	0.40	0.55	5.62E-04
10 percentile	.00	7.6	4.63	.09	.014	.037	.016	.15	.09	.48	.72	7.93E-04
25 percentile	1.20	8.9	4.84	.18	.024	.056	.021	.23	.12	.77	1.01	3.78E-03
50 percentile	10.30	12.3	5.00	.34	.034	.130	.050	.41	.18	1.00	1.59	1.00E-02
75 percentile	26.52	18.6	5.43	.59	.065	.270	.080	.83	.29	1.98	2.91	1.43E-02
90 percentile	50.36	26.4	6.10	.79	.143	.574	.221	1.32	.72	3.22	3.55	2.36E-02
Maximum value	65.80	69.0	6.25	5.80	.625	2.400	.690	1.98	2.92	7.96	10.04	5.13E-02
Volume-weighted mean	NA	11.6	4.96	.27	.032	.128	.047	.39	.19	.99	1.51	1.11E-02
Arithmetic mean	17.43	15.8	5.15	.54	.065	.257	.081	.57	.34	1.60	2.19	1.16E-02
No. of valid samples	52	38	38	38	38	38	38	38	38	38	38	38
Total load, g/m2	NA	NA	NA	0.229	0.027	0.106	0.039	0.322	0.158	0.826	1.257	9.2E-03
Maximum interval load, g/m2	NA	NA	NA	.018	.002	.012	.009	.033	.019	.055	0.102	1.1E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-.41	-.06	-.45	-.52	-.41	-.49	-.39	-.40	-.53	-0.42	0.06
P-level		.000	.589	.000	.000	.000	.000	.001	.001	.000	.000	.589



Percentiles of volume-weighted mean concentrations for site AR27, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site AR27.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site AR27.

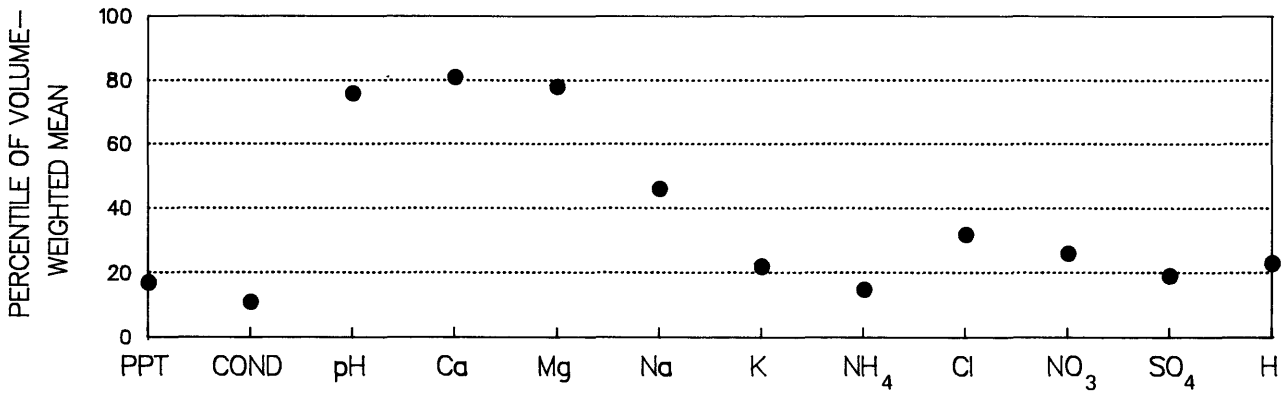
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

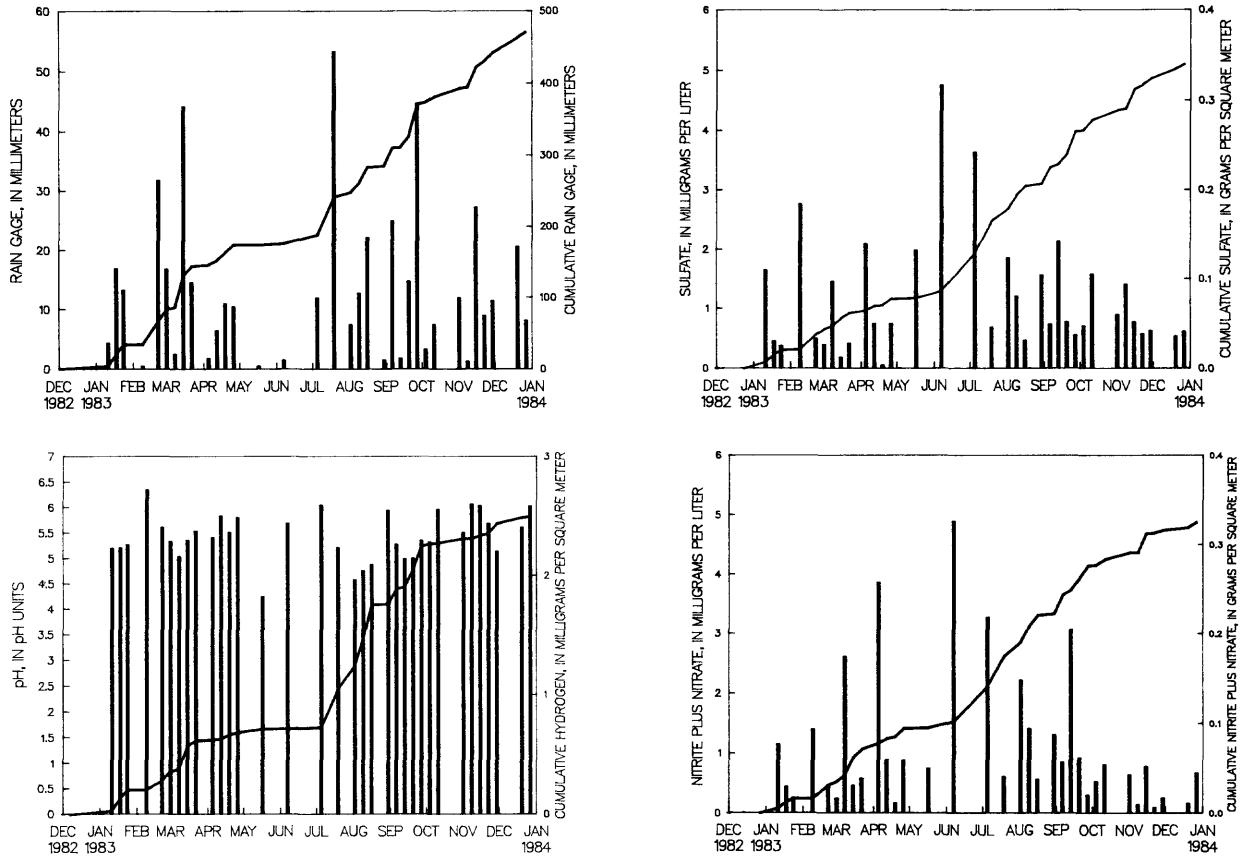
STATION: Grand Canyon, Arizona — Latitude: 36°04'18" Longitude: 112°09'11"
CAL number: AZ03 — Map ID number: 5
ADS number: 068a00
Station altitude above mean sea level, in meters: 2152
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 53 (371)
-- When ppt occurred: 44 (308)
-- When ppt did not occur: 9 (63)
-- When sample volume was substituted for missing rain gage: 1 (6)
-- With chemical samples: 34 (237)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 80.9
Percent of total measured ppt with chemical samples: 90.9
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 90.3
Total measured ppt, in mm: 518.5

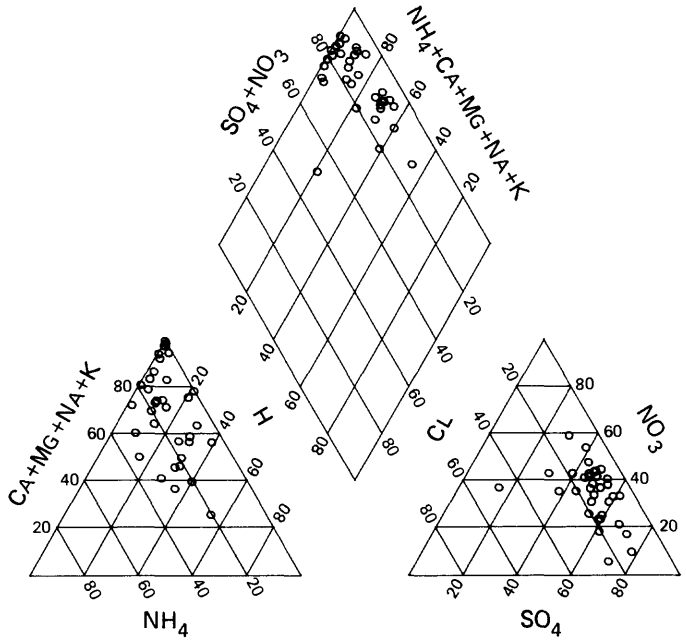
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.2	4.24	0.05	0.014	0.021	0.002	0.01	0.04	0.09	0.05	4.47E-04
10 percentile	.00	3.4	4.82	.06	.016	.030	.005	.01	.06	.16	.38	9.02E-04
25 percentile	.30	4.2	5.18	.12	.023	.046	.011	.03	.09	.41	.52	1.56E-03
50 percentile	4.30	6.1	5.38	.30	.066	.094	.023	.08	.13	.71	.74	4.13E-03
75 percentile	13.85	14.2	5.81	.81	.172	.285	.048	.18	.35	1.33	1.60	6.54E-03
90 percentile	29.96	25.3	6.04	2.44	.363	.919	.112	.31	.58	3.16	2.44	1.53E-02
Maximum value	53.30	45.5	6.35	2.76	.615	1.220	.466	.98	1.64	4.89	4.75	5.75E-02
Volume-weighted mean	NA	6.1	5.28	.27	.052	.093	.025	.10	.13	.69	.72	5.29E-03
Arithmetic mean	9.78	10.8	5.44	.62	.127	.241	.051	.14	.27	1.11	1.17	6.75E-03
No. of samples	53	34	34	34	34	34	34	34	34	34	34	34
Total load, g/m2	NA	NA	NA	0.125	0.025	0.044	0.012	0.045	0.063	0.325	0.340	2.5E-03
Maximum interval load, g/m2	NA	NA	NA	.029	.004	.005	.003	.006	.007	.039	.043	3.2E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.52	-0.11	-.59	-.61	-.54	-.50	-.07	-.51	-.31	-.47	0.11
P-level		.000	.381	.000	.000	.000	.000	.591	.000	.010	.000	.381



Percentiles of volume-weighted mean concentrations for site AZ03, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site AZ03.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site AZ03.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

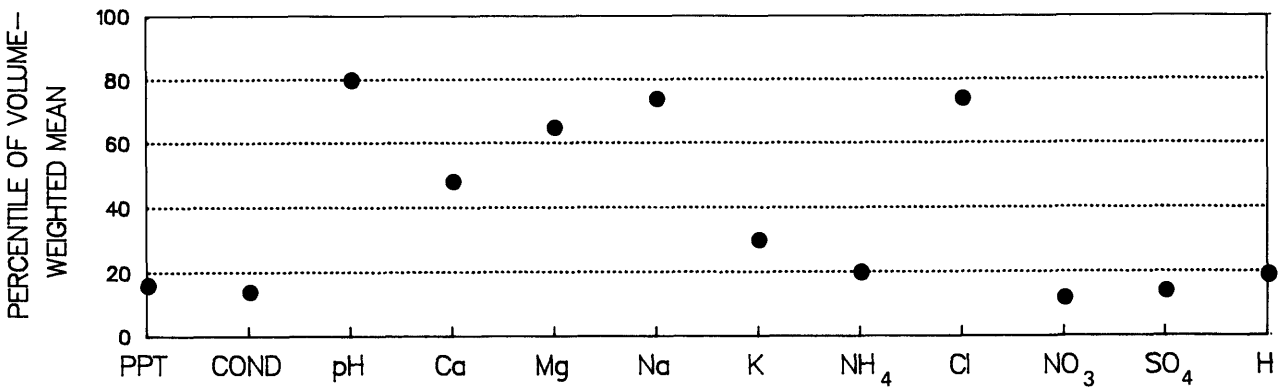
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Organ Pipe Cactus National Monument, Arizona — Latitude: 31°57'02" Longitude: 112°48'00"
CAL number: AZ06 — Map ID number: 6
ADS number: 003a01
Station altitude above mean sea level, in meters: 506
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 53 (371)
-- When ppt occurred: 34 (238)
-- When ppt did not occur: 19 (133)
-- When sample volume was substituted for missing rain gage: 1 (7)
-- With chemical samples: 25 (175)

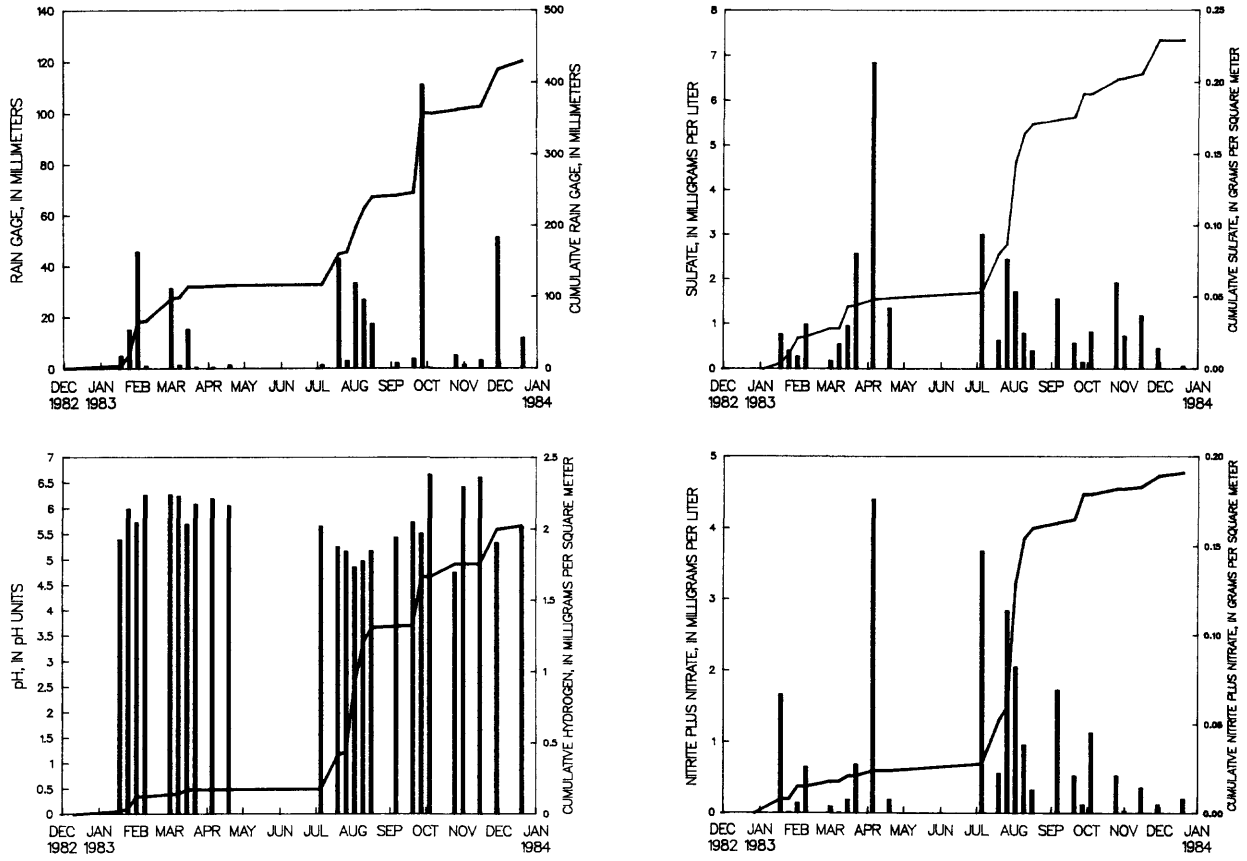
Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurments: 100.0
Percent summary period with chemical samples or no ppt: 83.0
Percent of total measured ppt with chemical samples: 91.6
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 93.7

Total measured ppt, in mm: 469.6

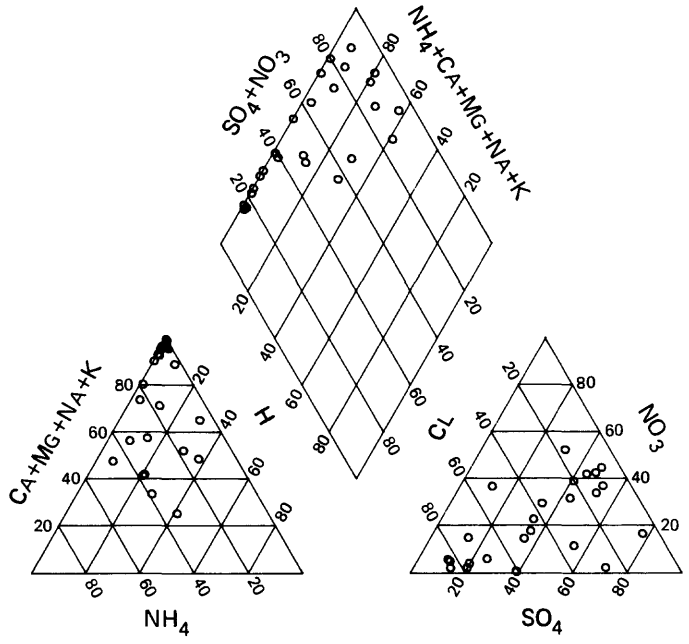
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.6	4.75	0.03	0.010	0.039	0.006	0.01	0.08	0.01	0.05	2.19E-04
10 percentile	.00	3.0	4.92	.04	.015	.071	.007	.01	.10	.02	.16	3.26E-04
25 percentile	.00	4.6	5.29	.09	.023	.097	.022	.01	.18	.13	.41	6.11E-04
50 percentile	.30	9.9	5.69	.32	.072	.277	.058	.10	.39	.53	.78	2.04E-03
75 percentile	4.95	23.0	6.21	.65	.328	2.050	.119	.35	2.71	1.39	1.63	5.15E-03
90 percentile	34.38	39.9	6.50	1.76	.545	3.426	.279	.65	5.92	3.18	2.75	1.21E-02
Maximum value	111.00	51.9	6.66	2.86	.754	4.580	.484	.89	7.37	4.40	6.83	1.78E-02
Volume-weighted mean	NA	6.2	5.33	.15	.046	.262	.026	.11	.44	.44	.53	4.71E-03
Arithmetic mean	8.86	15.5	5.72	.61	.185	1.032	.096	.21	1.59	.93	1.24	3.75E-03
No. of samples	53	25	25	25	25	25	25	25	25	25	25	25
Total load, g/m2	NA	NA	NA	0.063	0.020	0.113	0.011	0.048	0.189	0.191	0.229	2.0E-03
Maximum interval load, g/m2	NA	NA	NA	.013	.005	.040	.002	.016	.066	.068	.057	4.7E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.61	-0.39	-.64	-.66	-.61	-.68	-.21	-.51	-.28	-.43	0.39
P-level		.000	.007	.000	.000	.000	.000	.155	.000	.052	.003	.007



Percentiles of volume-weighted mean concentrations for site AZ06, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site AZ06.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site AZ06.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

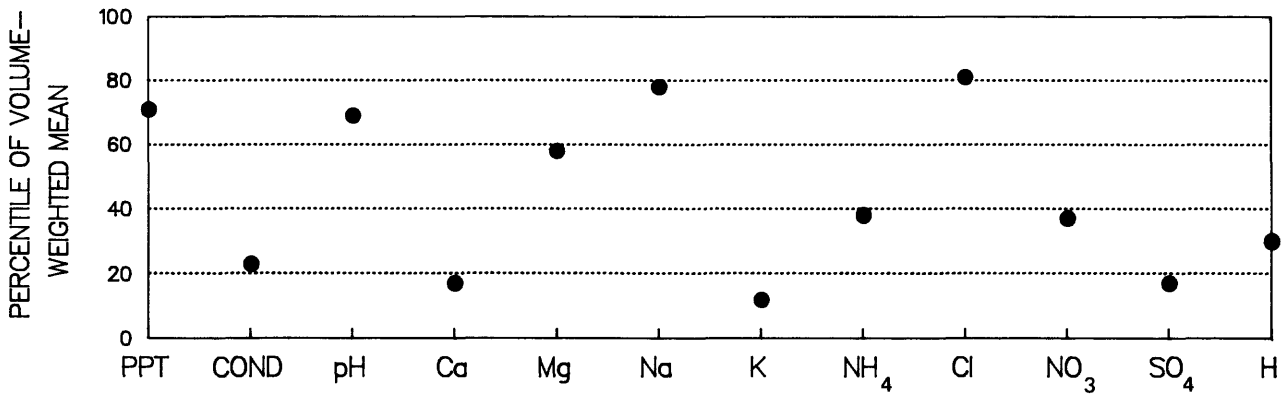
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Tanbark Flat, California — Latitude: 34°12'27" Longitude: 117°45'39"
CAL number: CA42 — Map ID number: 8
ADS number: 270a00
Station altitude above mean sea level, in meters: 853
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 53 (371)
-- When ppt occurred: 37 (259)
-- When ppt did not occur: 16 (112)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 27 (189)

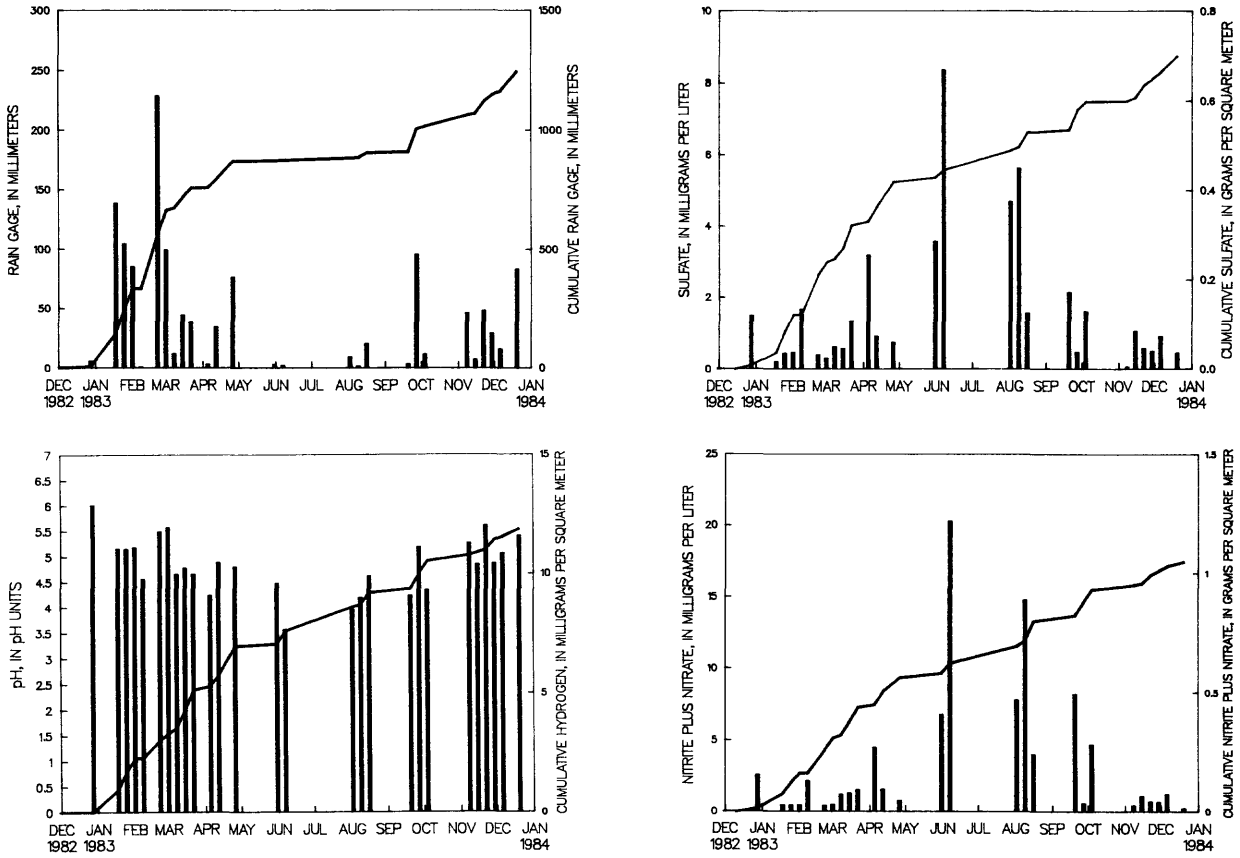
Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 81.1
Percent of total measured ppt with chemical samples: 94.5
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 91.5

Total measured ppt, in mm: 1318.6

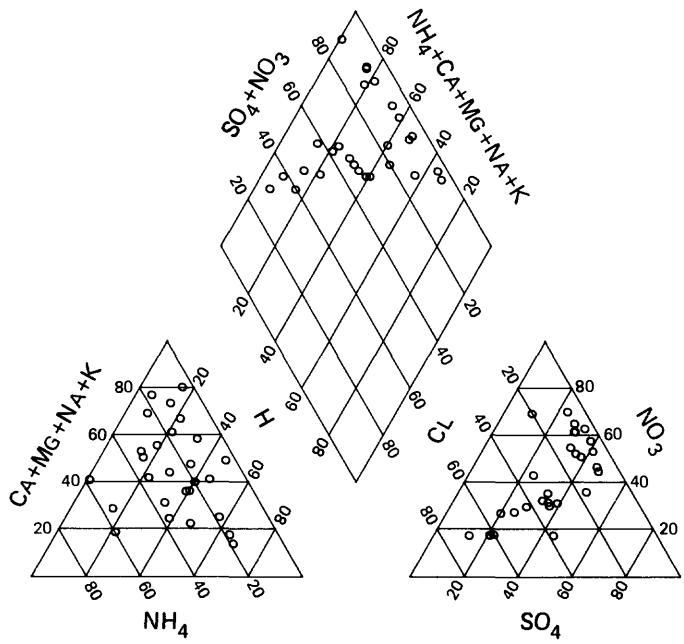
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	3.3	3.57	0.01	0.006	0.024	0.003	0.03	0.05	0.22	0.05	9.77E-04
10 percentile	.00	4.0	4.14	.02	.012	.039	.007	.04	.07	.42	.27	2.66E-03
25 percentile	.00	5.9	4.47	.04	.026	.162	.013	.11	.27	.49	.46	6.61E-03
50 percentile	2.00	12.9	4.84	.07	.055	.241	.031	.16	.42	1.22	.91	1.45E-02
75 percentile	36.45	29.6	5.18	.34	.121	.598	.064	.85	.93	4.50	1.66	3.39E-02
90 percentile	91.60	63.5	5.58	.66	.300	1.184	.184	1.28	1.84	9.53	4.86	7.36E-02
Maximum value	228.60	156.6	6.01	2.11	.422	2.540	.351	2.44	4.52	20.30	8.35	2.69E-01
Volume-weighted mean	NA	8.7	5.02	.07	.044	.286	.020	.17	.52	.84	.56	9.52E-03
Arithmetic mean	24.88	24.6	4.84	.27	.097	.474	.058	.49	.73	3.31	1.62	3.20E-02
No. of samples	53	27	27	27	27	27	27	27	27	27	27	27
Total load, g/m2	NA	NA	NA	0.082	0.054	0.357	0.025	0.214	0.652	1.048	0.700	1.2E-02
Maximum interval load, g/m2	NA	NA	NA	.011	.014	.100	.005	.037	.197	.096	.089	1.2E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.63	0.54	-.66	-.50	-.34	-.63	-.41	-.21	-.68	-.73	-0.54
P-level		.000	.000	.000	.000	.014	.000	.003	.118	.000	.000	.000



Percentiles of volume-weighted mean concentrations for site CA42, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site CA42. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site CA42.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Hopland (Ukiah), California — Latitude: 39°00'17" Longitude: 123°05'05"
CAL number: CA45 — Map ID number: 9
ADS number: 007a00
Station altitude above mean sea level, in meters: 253
Number of sampling intervals (days in parenthesis):

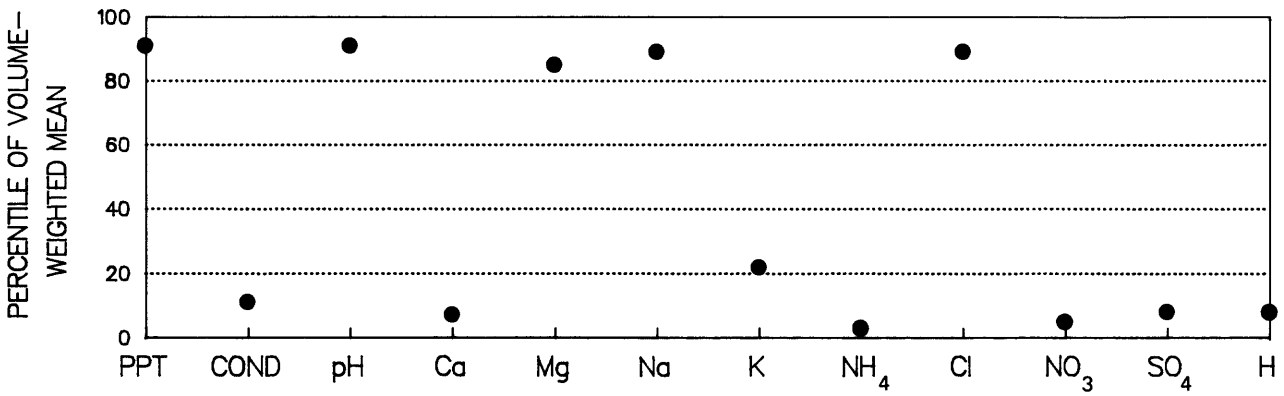
-- With ppt measurements:	53	(371)
-- When ppt occurred:	36	(252)
-- When ppt did not occur:	17	(119)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	32	(224)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)

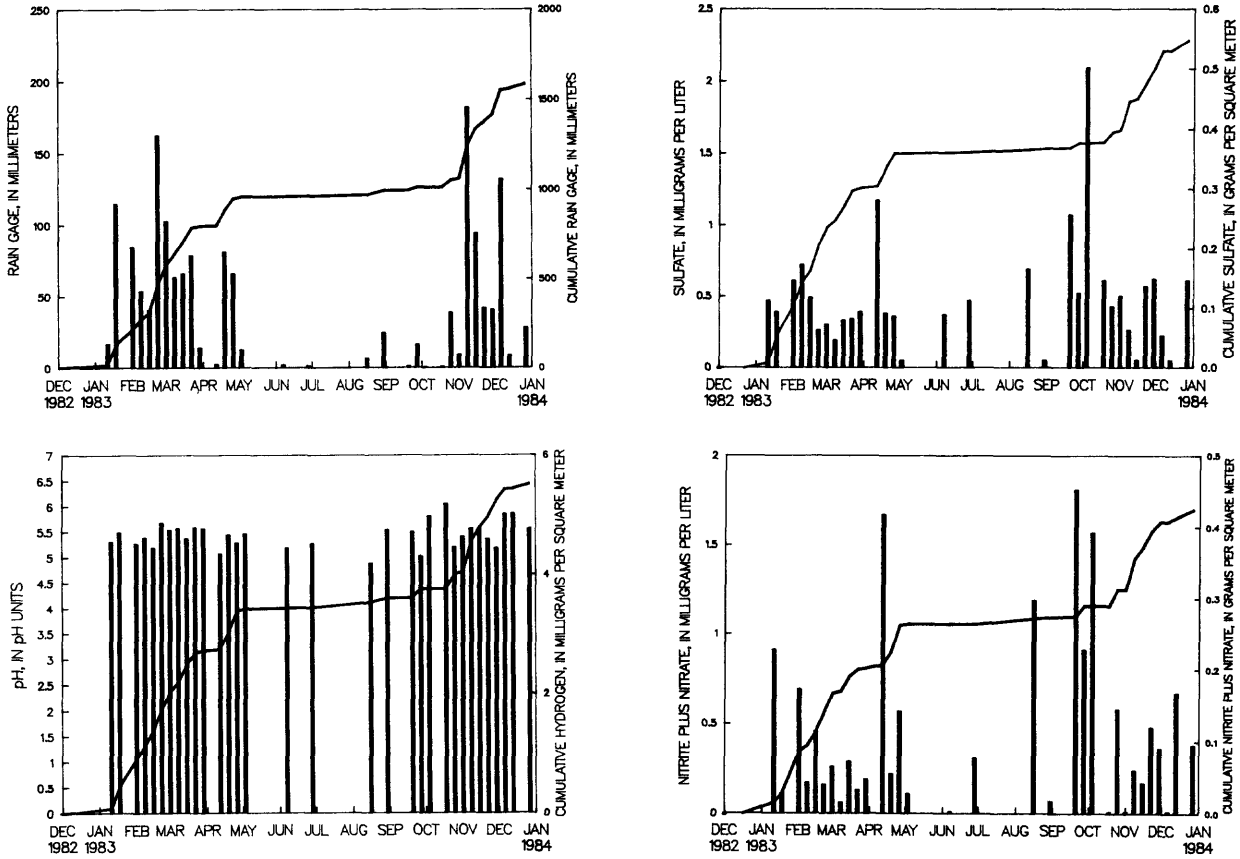
Percent summary period with ppt measurments:	100.0
Percent summary period with chemical samples or no ppt:	92.4
Percent of total measured ppt with chemical samples:	86.9
Percent of total measured ppt in raingage that was collected in wet-sample bucket:	99.1

Total measured ppt, in mm: 1827.9

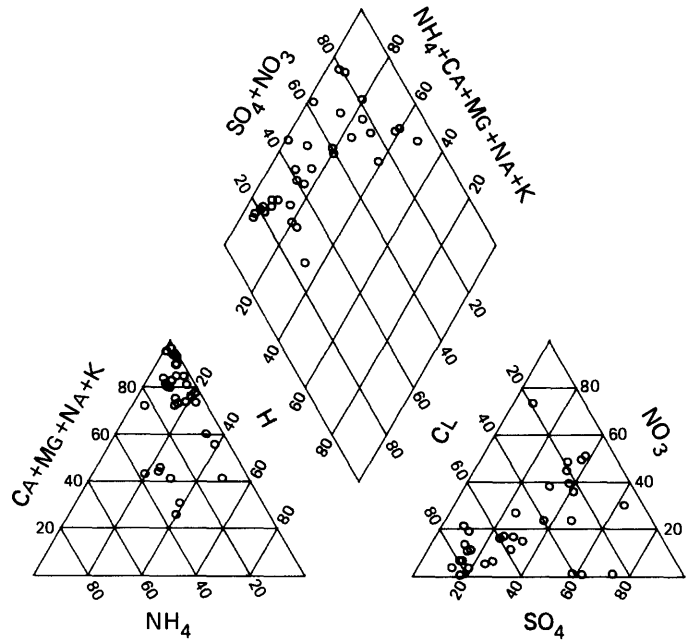
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.3	4.88	0.01	0.007	0.017	0.003	0.01	0.05	0.01	0.05	8.91E-04
10 percentile	.00	3.1	5.10	.03	.013	.055	.010	.01	.12	.01	.05	1.45E-03
25 percentile	.00	4.5	5.27	.04	.023	.124	.015	.01	.20	.11	.27	2.69E-03
50 percentile	8.60	5.8	5.45	.05	.041	.268	.025	.04	.40	.27	.41	3.55E-03
75 percentile	64.75	8.6	5.57	.09	.087	.493	.044	.12	.88	.65	.61	5.37E-03
90 percentile	114.26	13.1	5.84	.36	.161	1.097	.106	.16	2.08	1.46	.96	7.94E-03
Maximum value	181.90	29.0	6.05	1.22	.381	1.360	.212	.29	2.92	1.81	2.09	1.32E-02
Volume-weighted mean	NA	6.1	5.46	.05	.060	.423	.025	.05	.78	.27	.34	3.48E-03
Arithmetic mean	34.49	7.5	5.44	.13	.067	.395	.042	.07	.71	.46	.49	4.30E-03
No. of samples	53	32	32	32	32	32	32	32	32	32	32	32
Total load, g/m2	NA	NA	NA	0.072	0.095	0.671	0.039	0.081	1.241	0.425	0.547	5.5E-03
Maximum interval load, g/m2	NA	NA	NA	.009	.014	.091	.005	.013	0.177	.058	.052	5.0E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.16	0.16	-.55	-.03	.12	-.28	-.11	0.23	-.23	-0.34	-0.16
P-level		.200	.211	.000	.820	.347	.024	.400	.067	.066	.008	.211



Percentiles of volume-weighted mean concentrations for site CA45, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site CA45.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site CA45.

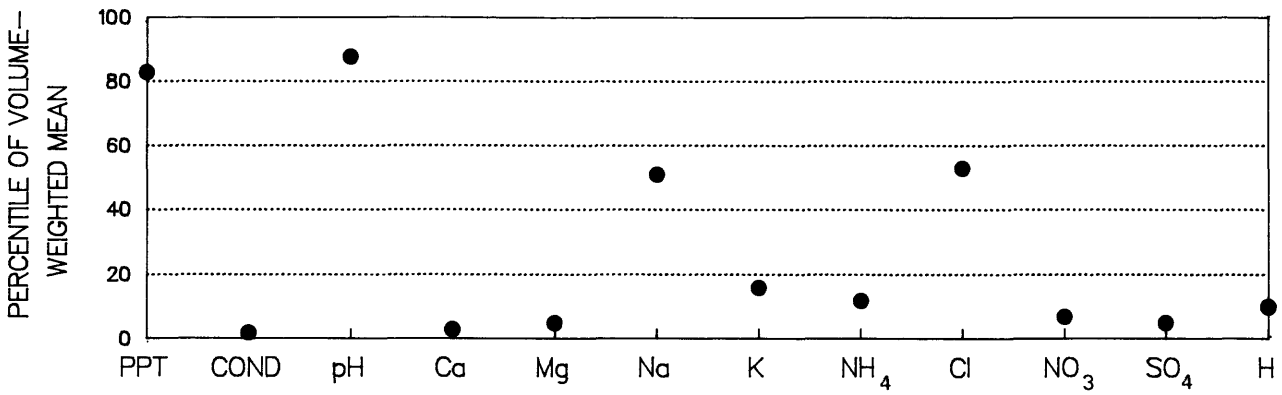
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

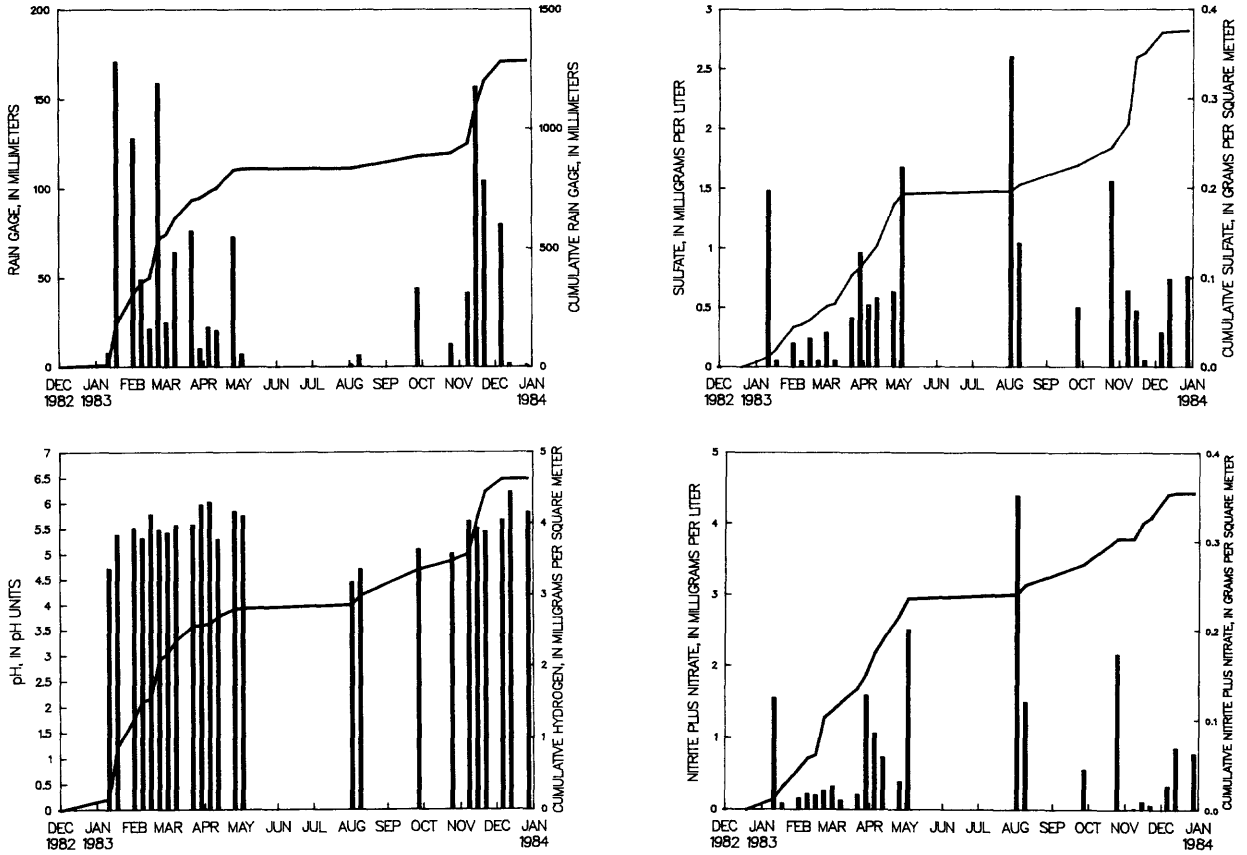
STATION: Sequoia National Park, California — Latitude: 36°34'09" Longitude: 118°46'40"
CAL number: CA75 — Map ID number: 10
ADS number: 008a00
Station altitude above mean sea level, in meters: 1856
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 52 (364)
-- When ppt occurred: 37 (259)
-- When ppt did not occur: 15 (105)
-- When sample volume was substituted for missing rain gage: 12 (84)
-- With chemical samples: 24 (168)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 98.1
Percent summary period with chemical samples or no ppt: 73.6
Percent of total measured ppt with chemical samples: 86.1
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 101.2
Total measured ppt, in mm: 1489.7

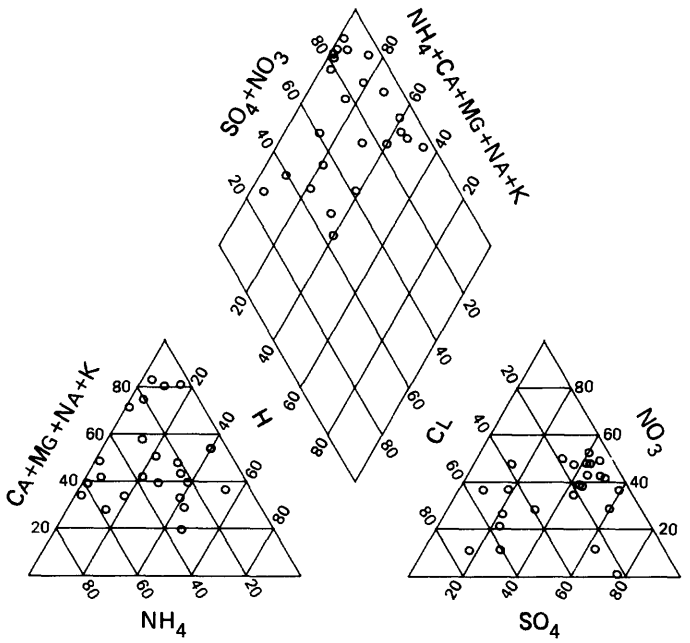
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.1	4.44	0.01	0.006	0.017	0.007	0.01	0.01	0.01	0.05	6.03E-04
10 percentile	.00	2.3	4.70	.02	.009	.028	.008	.01	.07	.07	.05	1.01E-03
25 percentile	.00	3.0	5.29	.03	.012	.057	.013	.05	.09	.17	.21	1.72E-03
50 percentile	6.25	5.1	5.50	.06	.026	.078	.021	.11	.14	.36	.51	3.16E-03
75 percentile	43.27	8.4	5.76	.18	.051	.240	.072	.25	.28	1.39	.91	5.07E-03
90 percentile	97.08	15.3	5.99	.35	.078	.354	.164	.75	.50	2.33	1.62	1.97E-02
Maximum velue	170.60	27.8	6.22	.58	.096	.414	.200	1.02	.76	4.40	2.60	3.63E-02
Volume-weighted mean	NA	3.7	5.44	.04	.019	.097	.022	.09	.17	.28	.29	3.60E-03
Arithmetic mean	28.65	7.1	5.46	.12	.035	.142	.050	.23	.21	.84	.66	6.02E-03
No. of samples	52	24	24	24	24	24	24	24	24	24	24	24
Total load, g/m2	NA	NA	NA	0.054	0.024	0.124	0.028	0.118	0.214	0.355	0.376	4.6E-03
Maximum interval load, g/m2	NA	NA	NA	.007	.004	.027	.008	.017	.050	.041	.074	7.1E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.60	0.00	-.68	-.57	-.34	-.56	-.49	-.35	-.57	-.62	0.00
P-level		.000	.980	.000	.000	.020	.000	.001	.020	.000	.000	.980



Percentiles of volume-weighted mean concentrations for site CA75, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site CA75. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site CA75.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

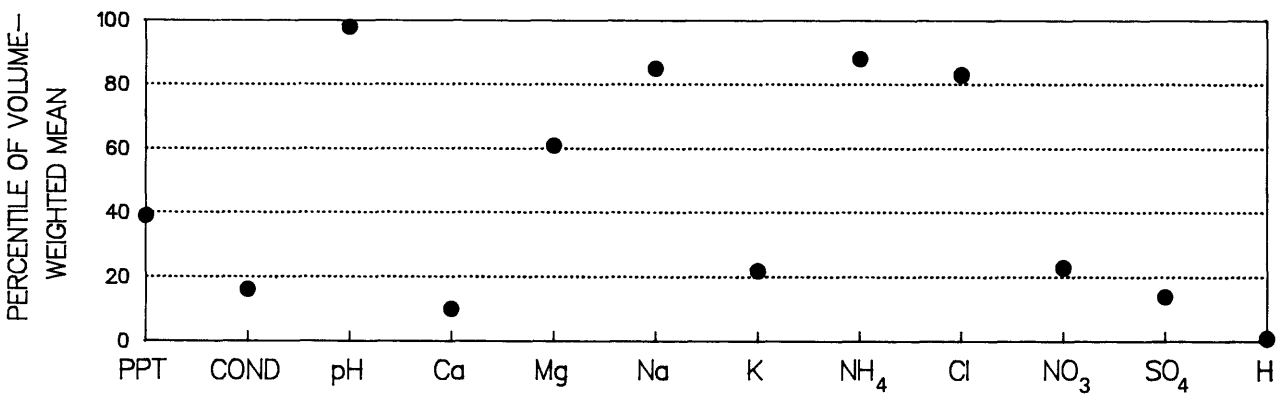
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Davis, California — Latitude: 38°32'07" Longitude: 121°46'30"
CAL number: CA88 — Map ID number: 11
ADS number: 009a00
Station altitude above mean sea level, in meters: 18
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 53 (371)
-- When ppt occurred: 33 (231)
-- When ppt did not occur: 20 (140)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 21 (147)

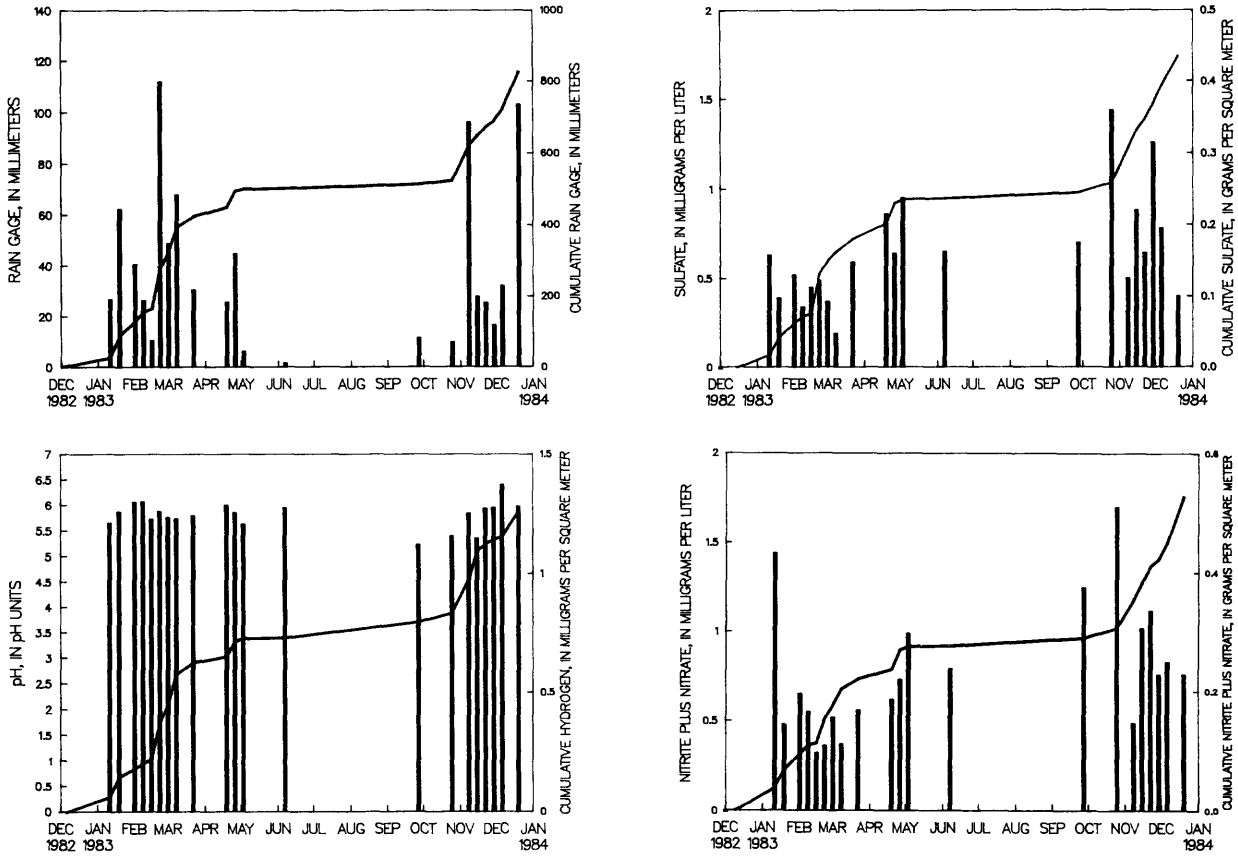
Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 77.4
Percent of total measured ppt with chemical samples: 89.9
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 97.3

Total measured ppt, in mm: 918.1

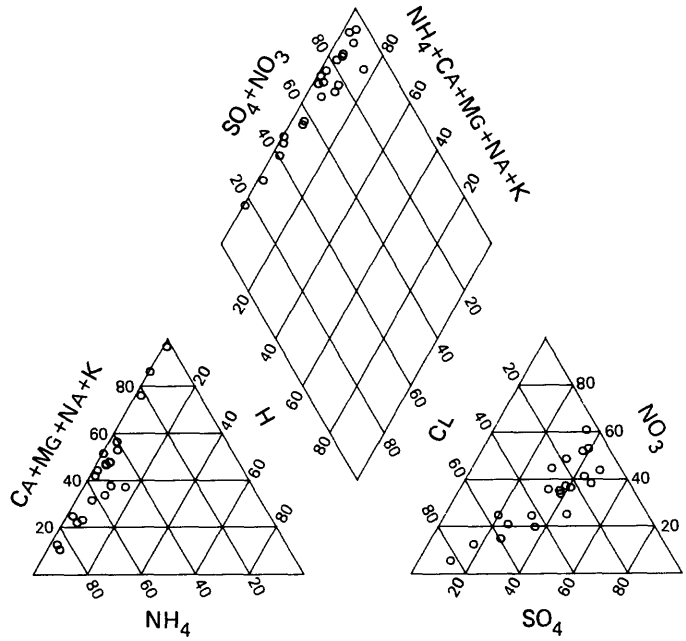
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	3.1	5.23	0.02	0.011	0.041	0.006	0.03	0.06	0.32	0.19	3.98E-04
10 percentile	.00	4.0	5.37	.03	.012	.049	.010	.18	.09	.36	.35	8.55E-04
25 percentile	.00	5.4	5.69	.04	.021	.103	.012	.31	.15	.50	.42	1.08E-03
50 percentile	.30	7.2	5.85	.05	.036	.208	.020	.35	.34	.73	.63	1.41E-03
75 percentile	27.30	10.8	5.96	.11	.061	.327	.034	.56	.59	1.01	.82	2.05E-03
90 percentile	60.08	13.0	6.07	.25	.306	.923	.087	.72	1.70	1.40	1.20	4.29E-03
Maximum value	111.80	30.6	6.40	.84	.442	3.510	.149	.77	6.63	1.70	1.44	5.89E-03
Volume-weighted mean	NA	6.6	5.82	.06	.045	.310	.025	.37	.56	.64	.53	1.53E-03
Arithmetic mean	17.32	8.5	5.81	.11	.073	.402	.031	.41	.72	.78	.65	1.85E-03
No. of samples	53	21	21	21	21	21	21	21	21	21	21	21
Total load, g/m2	NA	NA	NA	0.048	0.037	0.256	0.020	0.302	0.465	0.528	0.435	1.3E-03
Maximum interval load, g/m2	NA	NA	NA	.006	.007	.058	.005	.037	.109	.078	.055	1.5E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.48	0.17	-.45	-.24	-.04	-.26	-.26	.00	-.42	-.45	-0.17
P-level		.003	.290	.006	.131	.809	.102	.096	1.000	.009	.004	.290



Percentiles of volume-weighted mean concentrations for site CA88, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site CA88.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site CA88.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

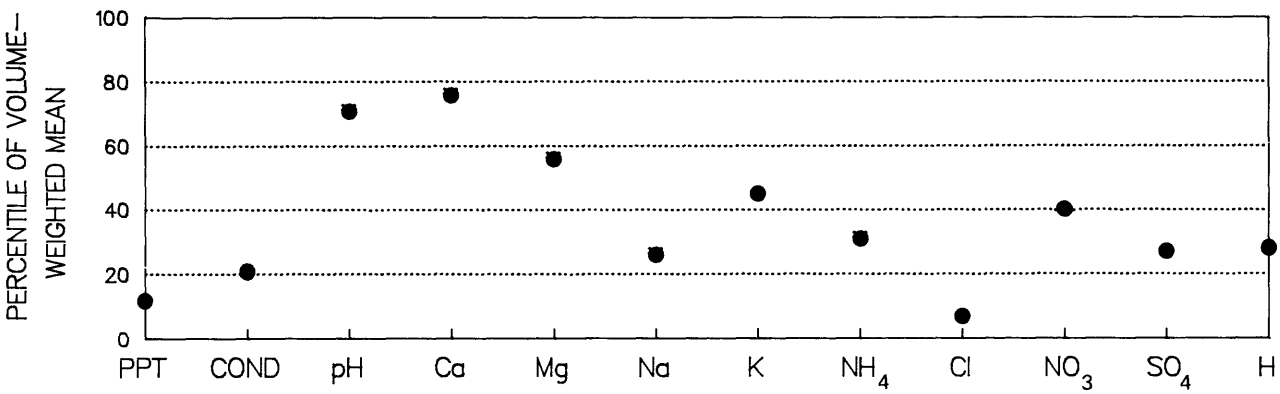
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Yosemite National Park, California — Latitude: 37°47'49" Longitude: 119°51'30"
CAL number: CA99 — Map ID number: 13
ADS number: 157a00
Station altitude above mean sea level, in meters: 1408
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 54 (371)
-- When ppt occurred: 41 (280)
-- When ppt did not occur: 13 (91)
-- When sample volume was substituted for missing rain gage: 3 (20)
-- With chemical samples: 31 (210)

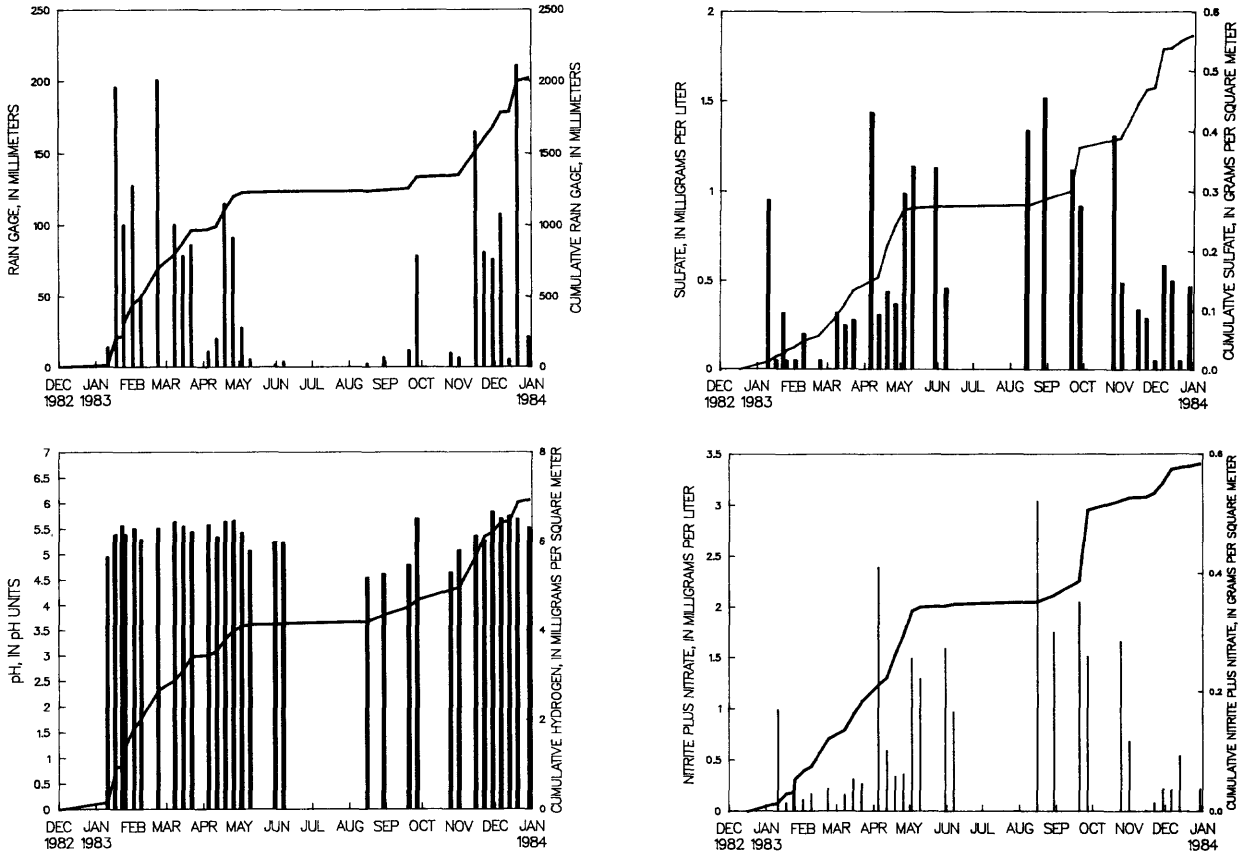
Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 54 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 81.1
Percent of total measured ppt with chemical samples: 87.0
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 100.2

Total measured ppt, in mm: 2322.2

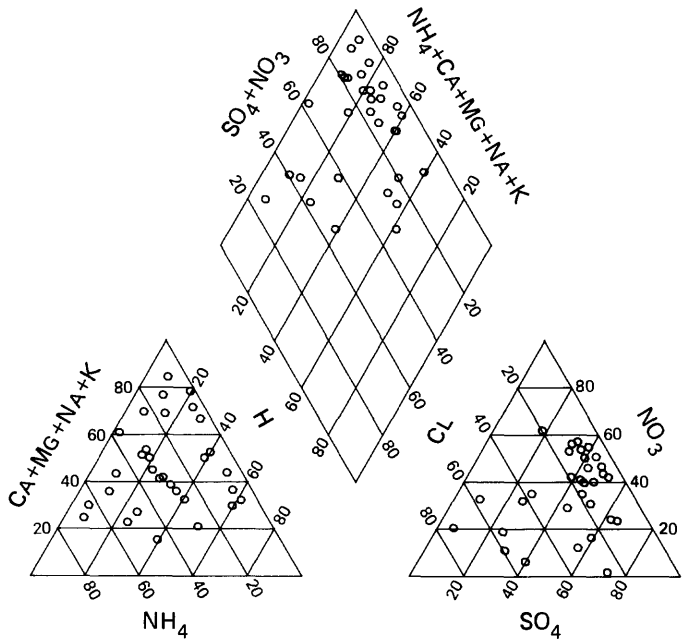
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	1.8	4.55	0.00	0.001	0.015	0.003	0.01	0.01	0.01	0.05	1.45E-03
10 percentile	.00	2.1	4.68	.01	.004	.022	.004	.01	.05	.08	.05	2.00E-03
25 percentile	.00	2.8	5.24	.01	.009	.043	.008	.01	.07	.17	.25	2.29E-03
50 percentile	7.00	4.2	5.43	.06	.018	.065	.018	.09	.11	.34	.44	3.72E-03
75 percentile	82.50	8.8	5.64	.12	.038	.214	.045	.29	.22	1.49	.99	5.75E-03
90 percentile	138.95	15.9	5.70	.33	.097	.309	.100	.61	.46	1.99	1.33	2.11E-02
Maximum value	210.80	24.8	5.84	.61	.142	.892	.569	.76	1.44	3.04	1.52	2.82E-02
Volume-weighted mean	NA	3.7	5.46	.04	.015	.078	.014	.08	.14	.29	.28	3.43E-03
Arithmetic mean	43.00	6.9	5.36	.11	.032	.133	.046	.18	.20	.76	.57	6.38E-03
No. of samples	54	31	31	31	31	31	31	31	31	31	31	31
Total load, g/m2	NA	NA	NA	0.085	0.030	0.159	0.028	0.163	0.275	0.584	0.560	6.9E-03
Maximum interval load, g/m2	NA	NA	NA	.022	.004	.029	.004	.029	.044	.119	.072	7.8E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.55	0.35	-.49	-.53	-.35	-.53	-.37	-.28	-.54	-.52	-0.35
P-level		.000	.007	.000	.000	.006	.000	.006	.031	.000	.000	0.007



Percentiles of volume-weighted mean concentrations for site CO15, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site CA99.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site CA99.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

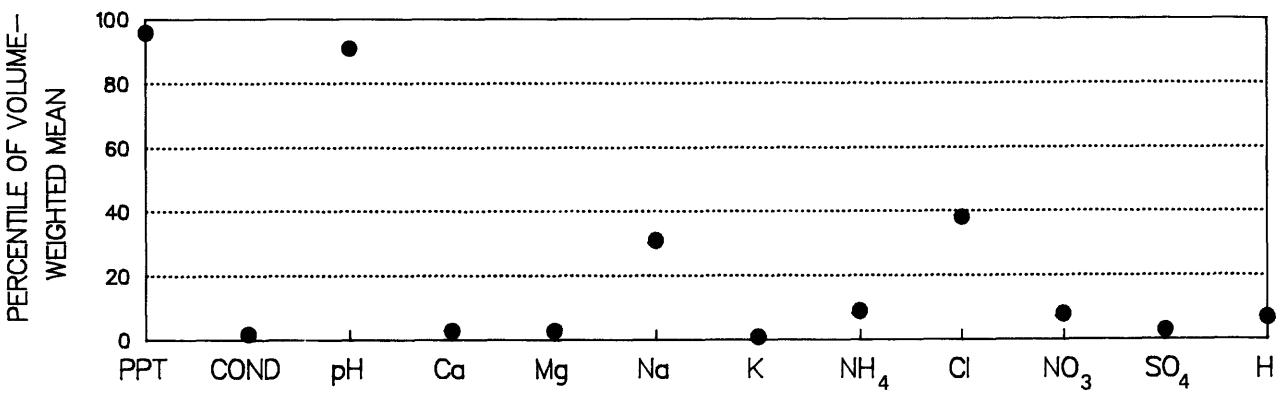
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Sand Spring, Colorado — Latitude: 40°30'27" Longitude: 107°42'07"
CAL number: CO15 — Map ID number: 16
ADS number: 173a00
Station altitude above mean sea level, in meters: 1998
Number of sampling intervals (days in parenthesis):

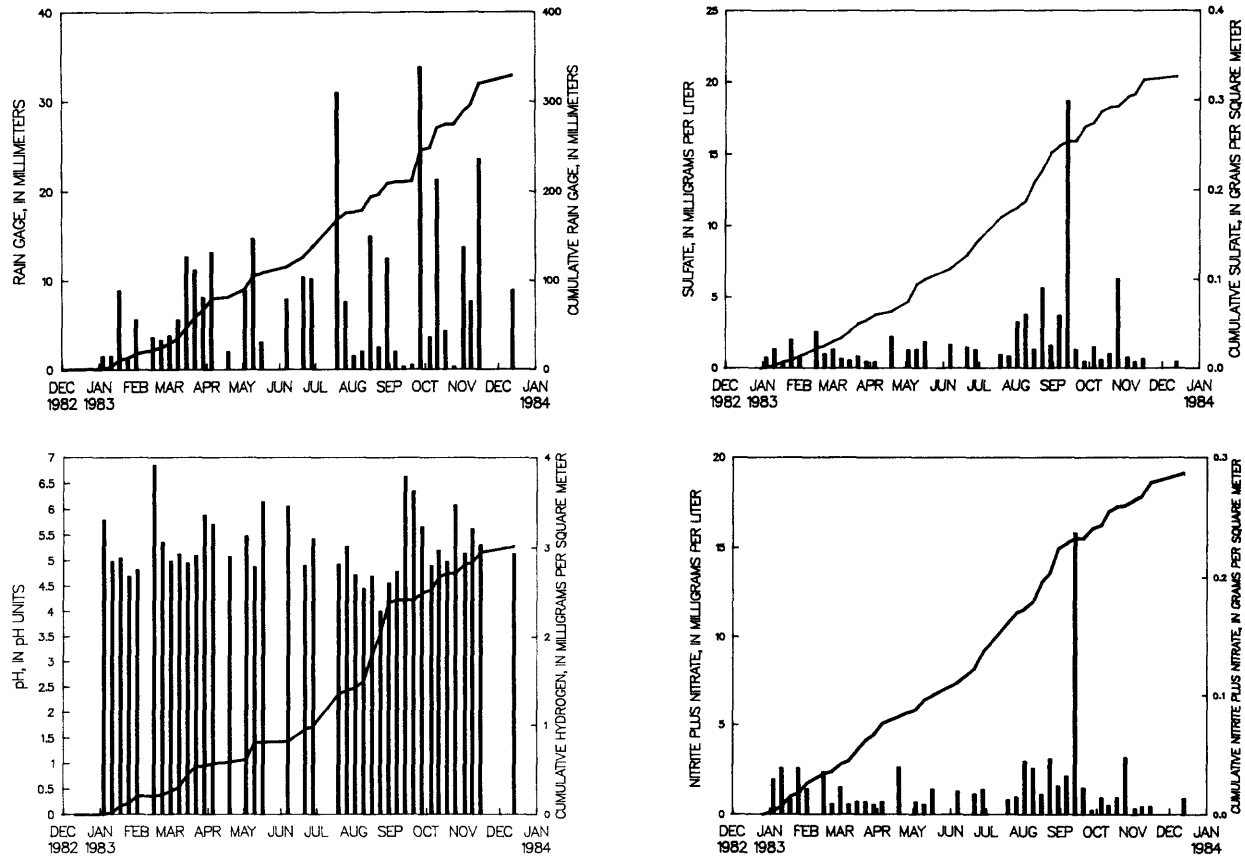
-- With ppt measurements:	53	(371)
-- When ppt occurred:	51	(357)
-- When ppt did not occur:	2	(14)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	39	(273)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 77.4
Percent of total measured ppt with chemical samples: 77.0
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 96.8
Total measured ppt, in mm: 427.7

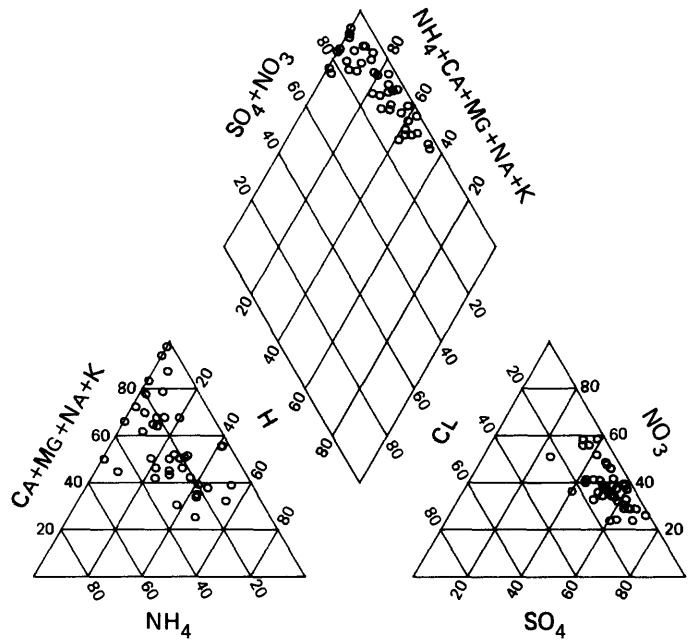
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.9	4.01	0.03	0.007	0.021	0.004	0.01	0.01	0.23	0.38	1.41E-04
10 percentile	.30	4.7	4.69	.07	.016	.028	.006	.04	.04	.46	.45	7.08E-04
25 percentile	1.85	6.3	4.90	.12	.024	.044	.013	.08	.07	.70	.6	2.19E-03
50 percentile	5.60	10.2	5.13	.28	.046	.079	.020	.19	.12	1.13	1.28	7.41E-03
75 percentile	11.30	17.1	5.66	.67	.121	.175	.062	.27	.23	2.15	1.84	1.26E-02
90 percentile	21.30	27.1	6.15	1.21	.290	.461	.115	.72	.62	2.98	3.79	2.04E-02
Maximum value	33.80	145.8	6.85	10.36	2.403	5.902	1.429	1.49	4.71	15.84	18.5	9.77E-02
Volume-weighted mean	NA	8.6	5.04	.24	.043	.074	.028	.15	.10	.87	.99	9.16E-03
Arithmetic mean	8.07	16.3	5.27	.71	.147	.290	.085	.27	.31	1.72	1.97	1.11E-02
No. of samples	53	39	39	39	39	39	39	39	39	39	39	39
Total load, g/m2	NA	NA	NA	0.080	0.014	0.024	0.009	0.049	0.033	0.287	0.326	3.0E-03
Meximum interval load, g/m2	NA	NA	NA	.009	.001	.002	.001	.006	.002	.025	.029	3.6E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.52	-0.05	-.54	-.67	-.64	-.33	-.39	-.60	-.58	-.44	0.05
P-level		.000	.672	.000	.000	.000	.003	.001	.000	.000	.000	.672



Percentiles of volume-weighted mean concentrations for site CA99, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site CO15. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site CO15.

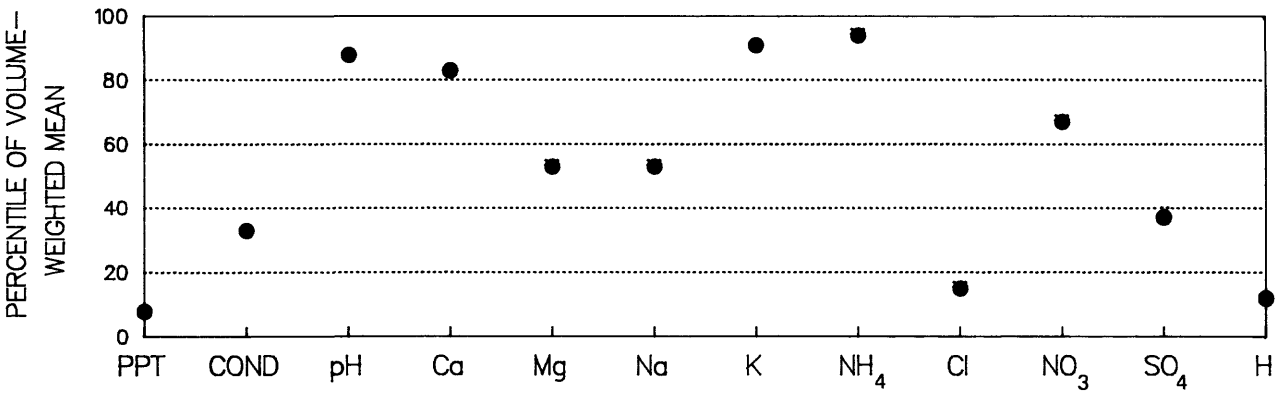
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

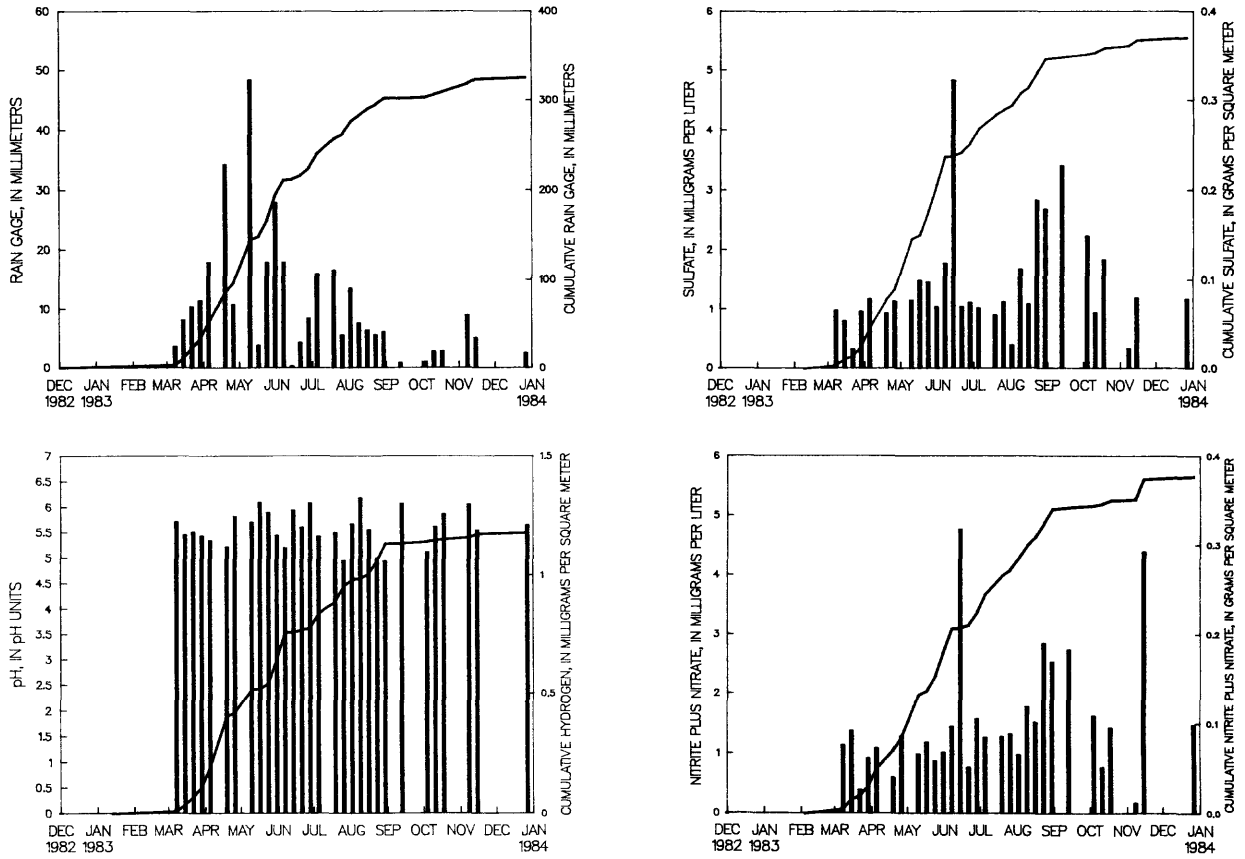
STATION: Pawnee, Colorado — Latitude: 40°48'23" Longitude: 104°45'15"
CAL number: CO22 — Map ID number: 18
ADS number: 012a01 — Station summary period: 12/28/1982 to 01/03/1984
Station altitude above mean sea level, in meters: 1641 — Length of summary period: 53 sampling intervals (371 days)

Number of sampling intervals (days in parenthesis):			Percent summary period with ppt measurements:	100.0
-- With ppt measurments:	53	(371)	Percent summary period with chemical samples or no ppt:	75.5
-- When ppt occurred:	43	(301)	Percent of total measured ppt with chemical samples:	87.1
-- When ppt did not occur:	10	(70)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	89.5
-- When sample volume was substituted for missing rain gage:	0	(0)		
-- With chemical samples:	30	(210)	Total measured ppt, in mm:	374.0

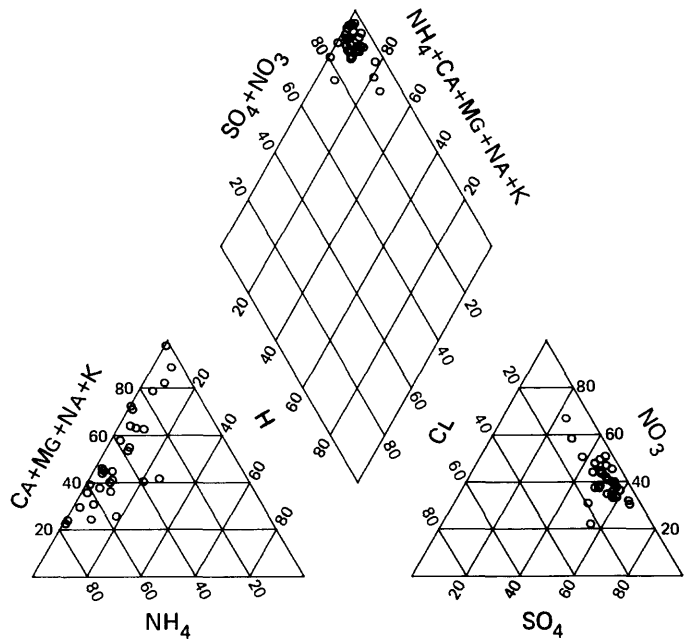
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.8	4.94	0.05	0.014	0.023	0.009	0.01	0.04	0.17	0.32	6.61E-04
10 percentile	.00	6.2	5.00	.13	.019	.035	.020	.07	.04	.62	.43	8.34E-04
25 percentile	.30	7.9	5.40	.21	.030	.061	.029	.29	.09	.97	.95	1.36E-03
50 percentile	3.60	9.5	5.57	.28	.043	.116	.049	.47	.13	1.29	1.12	2.67E-03
75 percentile	10.55	14.7	5.87	.48	.079	.201	.082	.70	.19	1.59	1.69	3.99E-03
90 percentile	17.80	20.7	6.08	.84	.154	.496	.185	1.18	.34	2.84	2.81	9.99E-03
Maximum value	48.30	38.8	6.18	1.90	.305	2.414	.366	1.57	.98	4.77	4.82	1.15E-02
Volume-weighted mean	NA	9.8	5.44	.28	.040	.101	.045	.50	.11	1.16	1.14	3.62E-03
Arithmetic mean	7.06	11.7	5.58	.41	.066	.260	.074	.55	.19	1.52	1.43	3.57E-03
No. of samples	53	30	30	30	30	30	30	30	30	30	30	30
Total load, g/m2	NA	NA	NA	0.091	0.013	0.033	0.015	0.164	0.037	0.377	0.370	1.2E-03
Maximum interval load, g/m2	NA	NA	NA	.016	.002	.005	.002	.026	.005	.048	.056	2.1E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.21	-0.21	-.33	-.51	-.54	-.37	.04	-.48	-.37	-.29	0.21
P-level		0.104	0.100	.011	.000	.000	.004	.761	.000	.005	.024	.100



Percentiles of volume-weighted mean concentrations for site CO22, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site CO22.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site CO22.

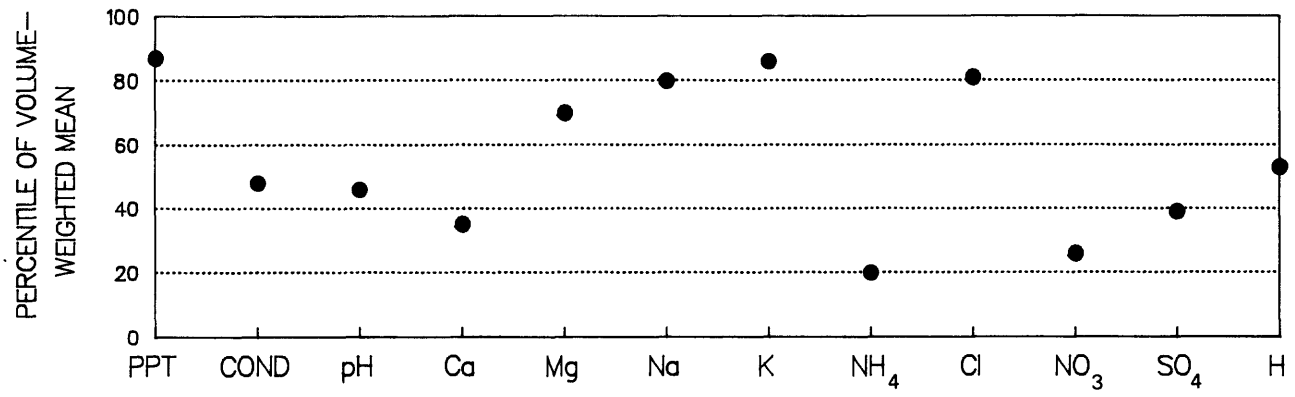
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

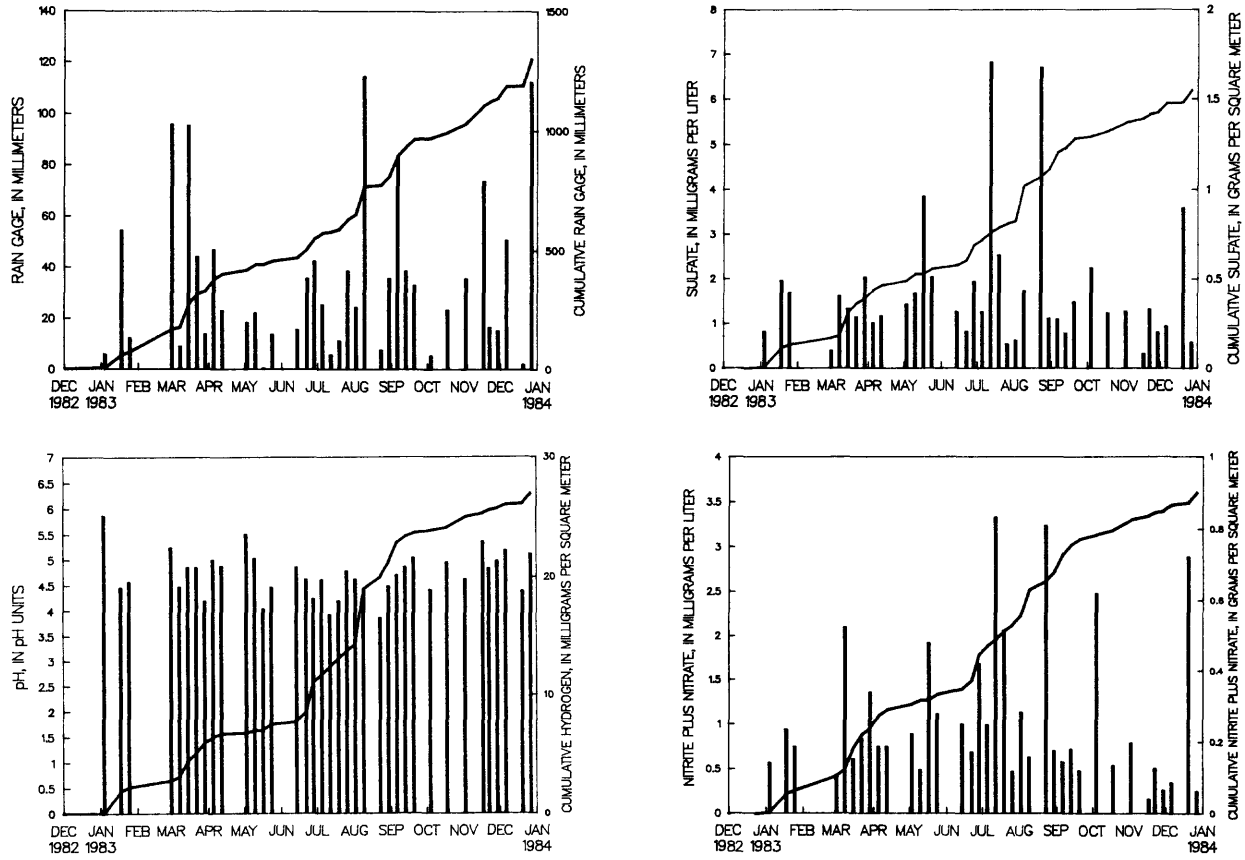
STATION: Bradford Forest, Florida — Latitude: 29°58'29" Longitude: 82°11'53"
CAL number: FL03 — Map ID number: 20
ADS number: 015a00
Station altitude above mean sea level, in meters: 44
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 52 (364)
-- When ppt occurred: 49 (343)
-- When ppt did not occur: 3 (21)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 37 (256)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 98.1
Percent summary period with chemical samples or no ppt: 74.7
Percent of total measured ppt with chemical samples: 80.3
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 93.8
Total measured ppt, in mm: 1619.5

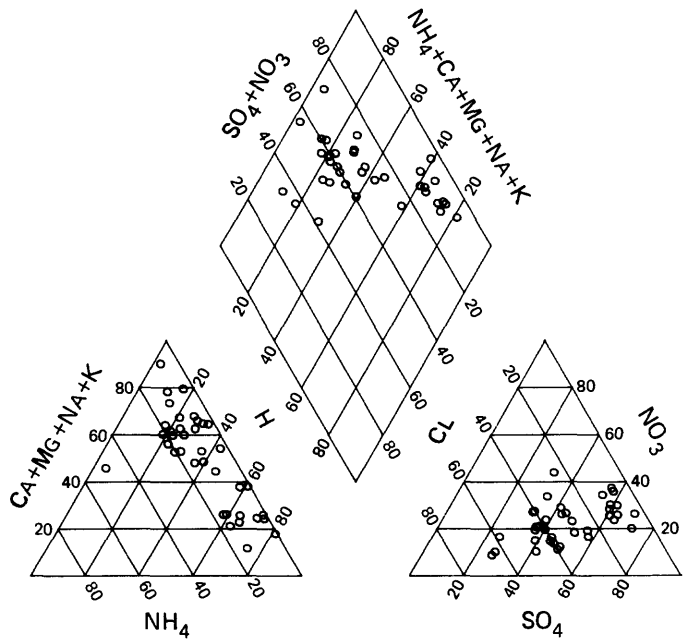
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	3.8	3.86	0.02	0.014	0.058	0.009	0.01	0.11	0.16	0.32	1.35E-03
10 percentile	.22	6.5	4.16	.05	.019	.103	.010	.01	.14	.33	.57	5.48E-03
25 percentile	7.92	11.0	4.43	.08	.031	.162	.023	.04	.28	.53	.88	1.02E-02
50 percentile	22.60	13.7	4.70	.14	.055	.334	.040	.10	.61	.75	1.28	2.00E-02
75 percentile	43.75	24.2	4.99	.21	.091	.523	.068	.19	.94	1.25	1.95	3.68E-02
90 percentile	80.57	45.9	5.26	.35	.163	1.320	.159	.55	2.11	2.56	3.64	7.03E-02
Maximum value	114.30	92.8	5.87	1.07	.711	4.327	.398	1.92	6.77	3.33	6.81	1.38E-01
Volume-weighted mean	NA	13.4	4.68	.11	.047	.291	.042	.11	.52	.69	1.19	2.08E-02
Arithmetic mean	31.14	20.6	4.71	.19	.083	.508	.062	.20	.86	1.07	1.71	3.02E-02
No. of samples	52	37	37	37	37	37	37	37	37	37	37	37
Total load, g/m2	NA	NA	NA	0.145	0.061	0.379	0.055	0.139	0.680	0.901	1.548	2.7E-02
Maximum interval load, g/m2	NA	NA	NA	.014	.005	.036	.013	.016	.070	.072	0.198	4.7E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.43	0.30	-.56	-.46	-.31	-.40	-.27	-.27	-.46	-.44	-0.30
P-level		.000	.009	.000	.000	.007	.001	.022	.021	.000	.000	.009



Percentiles of volume-weighted mean concentrations for site FL03, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site FL03.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site FL03.

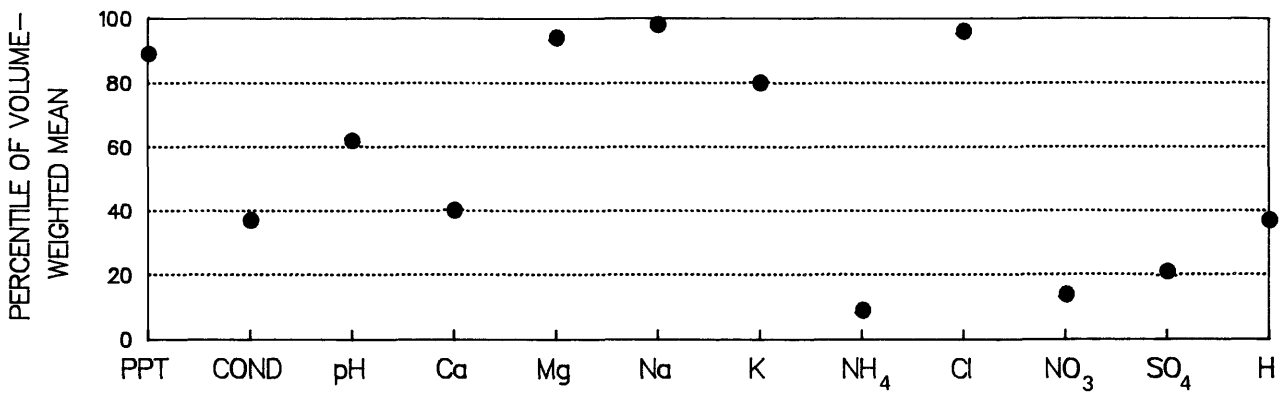
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

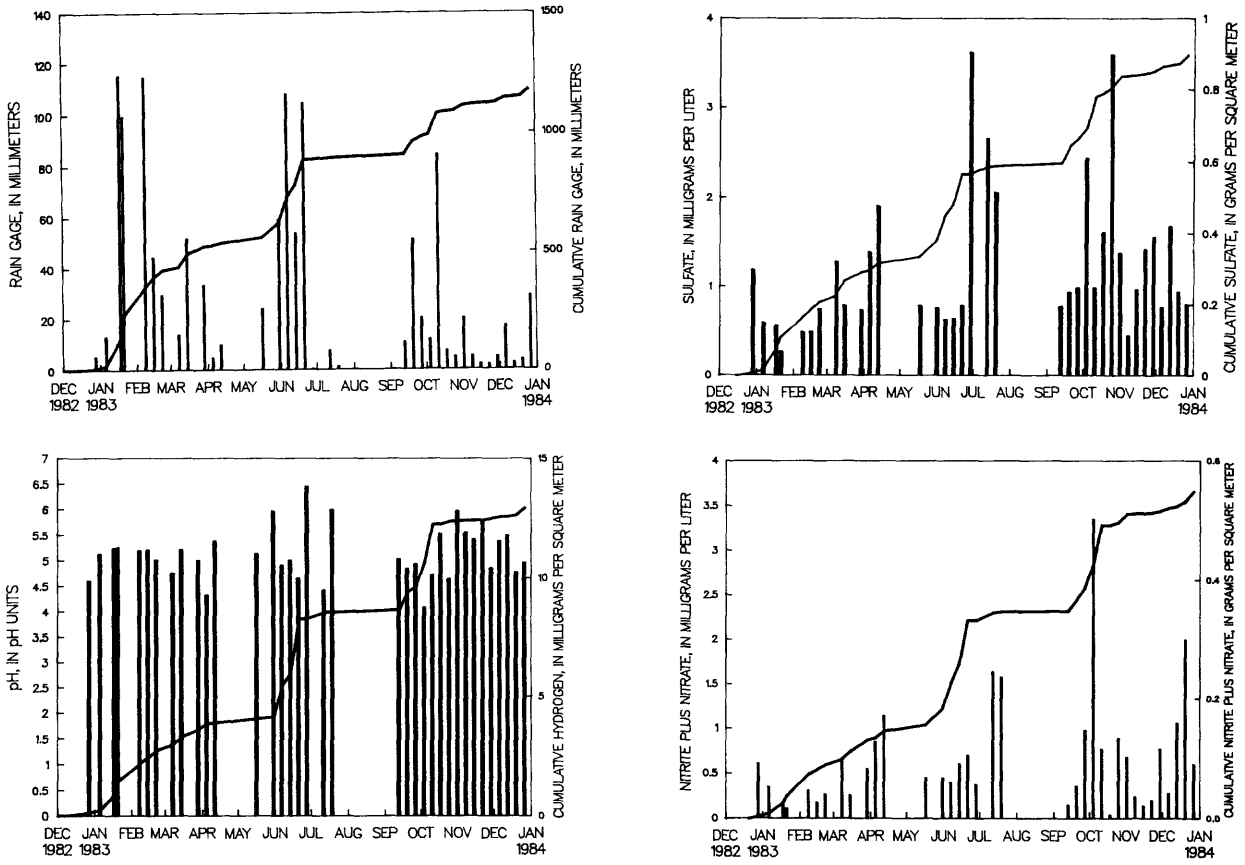
STATION: Everglades National Park, Florida — Latitude: 25°23'40" Longitude: 80°41'45"
CAL number: FL11 — Map ID number: 21
ADS number: 016a00
Station altitude above mean sea level, in meters: 2
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 51 (371)
-- When ppt occurred: 49 (357)
-- When ppt did not occur: 2 (14)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 36 (252)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 51 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 71.7
Percent of total measured ppt with chemical samples: 71.4
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 95.0
Total measured ppt, in mm: 1645.3

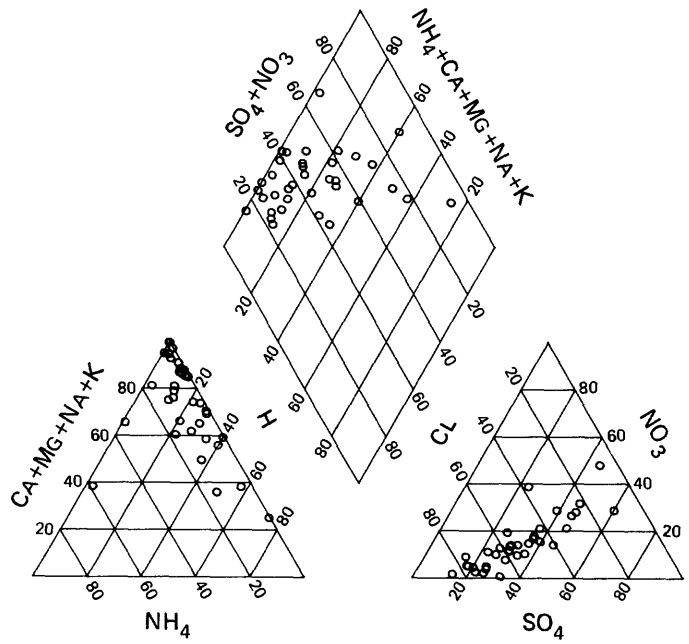
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	3.9	4.08	0.02	0.016	0.119	0.010	0.01	0.18	0.04	0.27	3.55E-04
10 percentile	.30	6.7	4.55	.06	.030	.174	.019	.01	.34	.15	.49	1.08E-03
25 percentile	3.80	9.2	4.79	.09	.048	.312	.035	.01	.49	.26	.74	3.87E-03
50 percentile	13.20	13.5	5.08	.15	.098	.636	.043	.05	1.15	.50	.94	8.35E-03
75 percentile	51.30	20.8	5.41	.39	.193	1.528	.108	.10	2.46	.83	1.52	1.64E-02
90 percentile	103.68	40.5	5.97	.82	.529	3.389	.201	.30	6.64	1.60	2.50	2.87E-02
Maximum value	193.30	48.1	6.45	1.35	.631	6.686	.249	.67	7.65	3.35	3.62	8.32E-02
Volume-weighted mean	NA	10.9	4.96	.12	.076	.545	.040	.08	.98	.47	.76	1.10E-02
Arithmetic mean	32.26	17.1	5.14	.29	.156	1.155	.077	.10	1.94	.67	1.21	1.28E-02
No. of samples	51	36	36	36	36	36	36	36	36	36	36	36
Total load, g/m2	NA	NA	NA	0.143	0.089	0.641	0.047	0.100	1.152	0.549	0.896	1.3E-02
Maximum interval load, g/m2	NA	NA	NA	.022	.012	.097	.005	.028	0.178	.073	.084	2.3E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.50	-0.11	-.55	-.51	-.45	-.47	-.03	-.44	-.20	-.51	0.11
P-level		.000	.368	.000	.000	.000	.000	.835	.000	.088	.000	.368



Percentiles of volume-weighted mean concentrations for site FL11, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site FL11.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site FL11.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

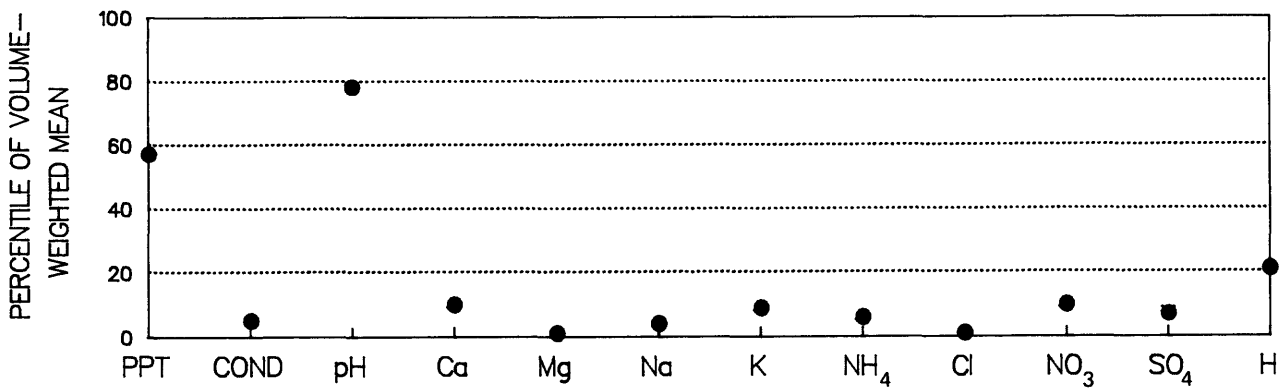
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Headquarters, Idaho — Latitude: 47°37'40" Longitude: 115°49'10"
CAL number: ID04 — Map ID number: 26
ADS number: 271a00
Station altitude above mean sea level, in meters: 969
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 50 (372)
-- When ppt occurred: 47 (352)
-- When ppt did not occur: 3 (20)
-- When sample volume was substituted for missing rain gage: 5 (49)
-- With chemical samples: 32 (239)

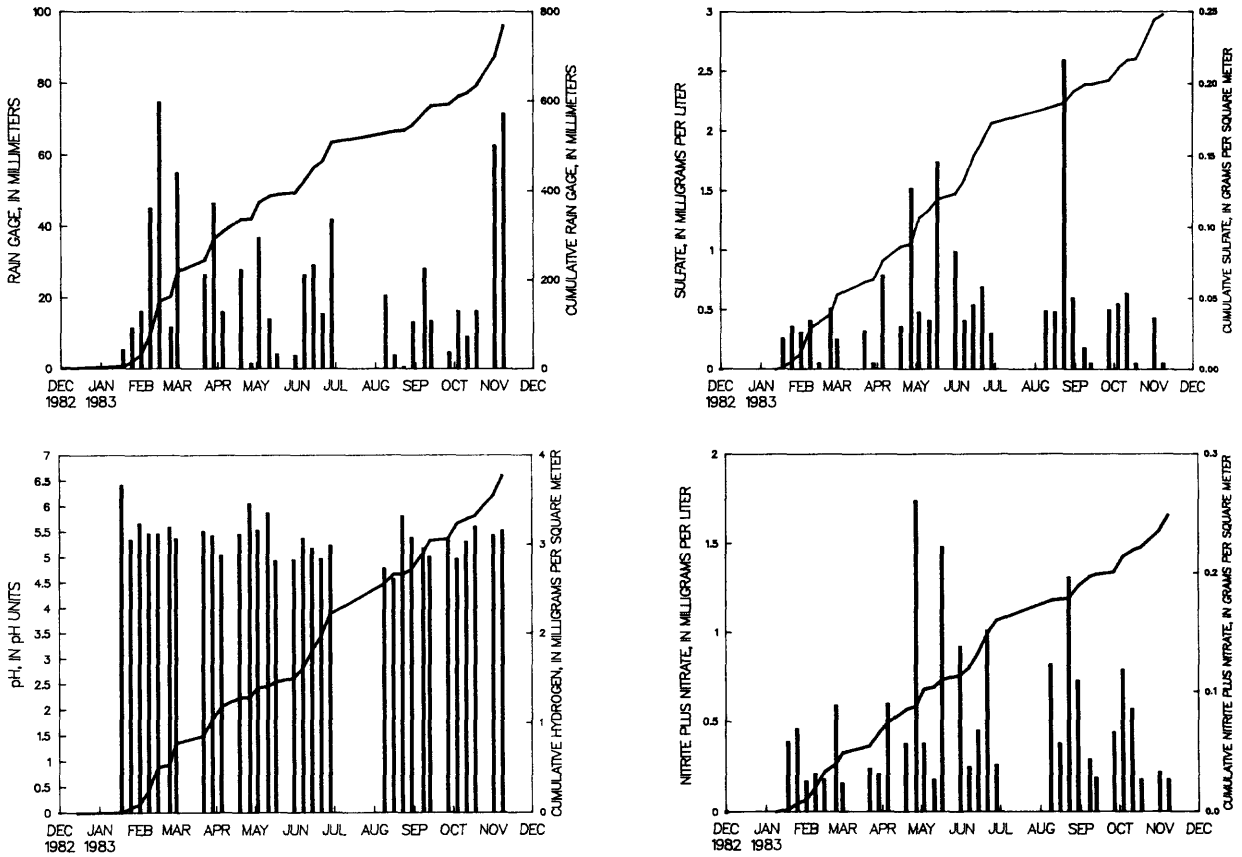
Station summary period: 12/28/1982 to 01/04/1984
Length of summary period: 50 sampling intervals (372 days)
Percent summary period with ppt measurements: 100.3
Percent summary period with chemical samples or no ppt: 69.8
Percent of total measured ppt with chemical samples: 67.9
Percent of total measured ppt in raingage thst was collected in the wet-sample bucket: 97.7

Total measured ppt, in mm: 1132.6

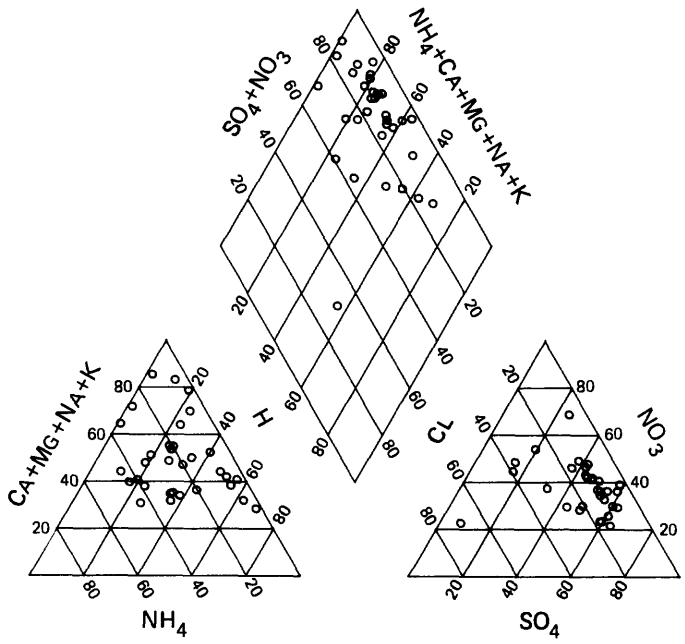
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.1	4.57	0.02	0.005	0.018	0.005	0.01	0.01	0.16	0.05	3.89E-04
10 percentile	.30	2.4	4.94	.03	.008	.022	.008	.01	.03	.18	.05	1.41E-03
25 percentile	4.02	2.9	5.07	.05	.011	.032	.012	.01	.05	.21	.27	2.97E-03
50 percentile	16.10	4.2	5.37	.07	.016	.052	.025	.07	.09	.38	.42	4.22E-03
75 percentile	31.25	7.1	5.53	.14	.033	.098	.049	.14	.15	.70	.59	8.53E-03
90 percentile	62.55	12.2	5.85	.31	.070	.153	.088	.18	.27	1.22	1.36	1.16E-02
Maximum value	77.40	15.8	6.41	.64	.218	.296	.130	.54	.55	1.74	2.59	2.69E-02
Volume-weighted mean	NA	3.8	5.31	.06	.014	.044	.019	.06	.07	.32	.32	4.90E-03
Arithmetic mean	22.65	5.6	5.36	.12	.031	.074	.035	.10	.12	.51	.54	5.99E-03
No. of samples	50	32	32	32	32	32	32	32	32	32	32	32
Total load, g/m2	NA	NA	NA	0.047	0.011	0.034	0.015	0.046	0.056	0.249	0.248	3.8E-03
Maximum interval load, g/m2	NA	NA	NA	.004	.001	.002	.001	.005	.006	.017	.027	3.4E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.58	0.08	-.63	-.69	-.61	-.55	-.36	-.59	-.46	-.46	-0.08
P-level		.000	.548	.000	.000	.000	.000	.005	.000	.000	.000	.548



Percentiles of volume-weighted mean concentrations for site ID04, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site ID04. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site ID04.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

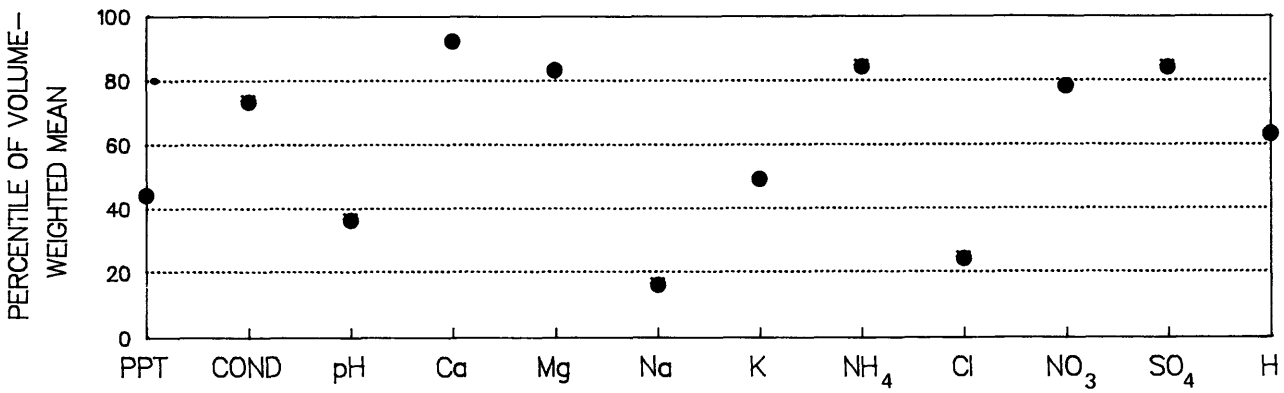
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: NIARC, Illinois — Latitude: 41°50'29" Longitude: 88°51'04"
CAL number: IL18 — Map ID number: 28
ADS number: 024a00
Station altitude above mean sea level, in meters: 265
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 53 (371)
-- When ppt occurred: 53 (371)
-- When ppt did not occur: 0 (0)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 39 (273)

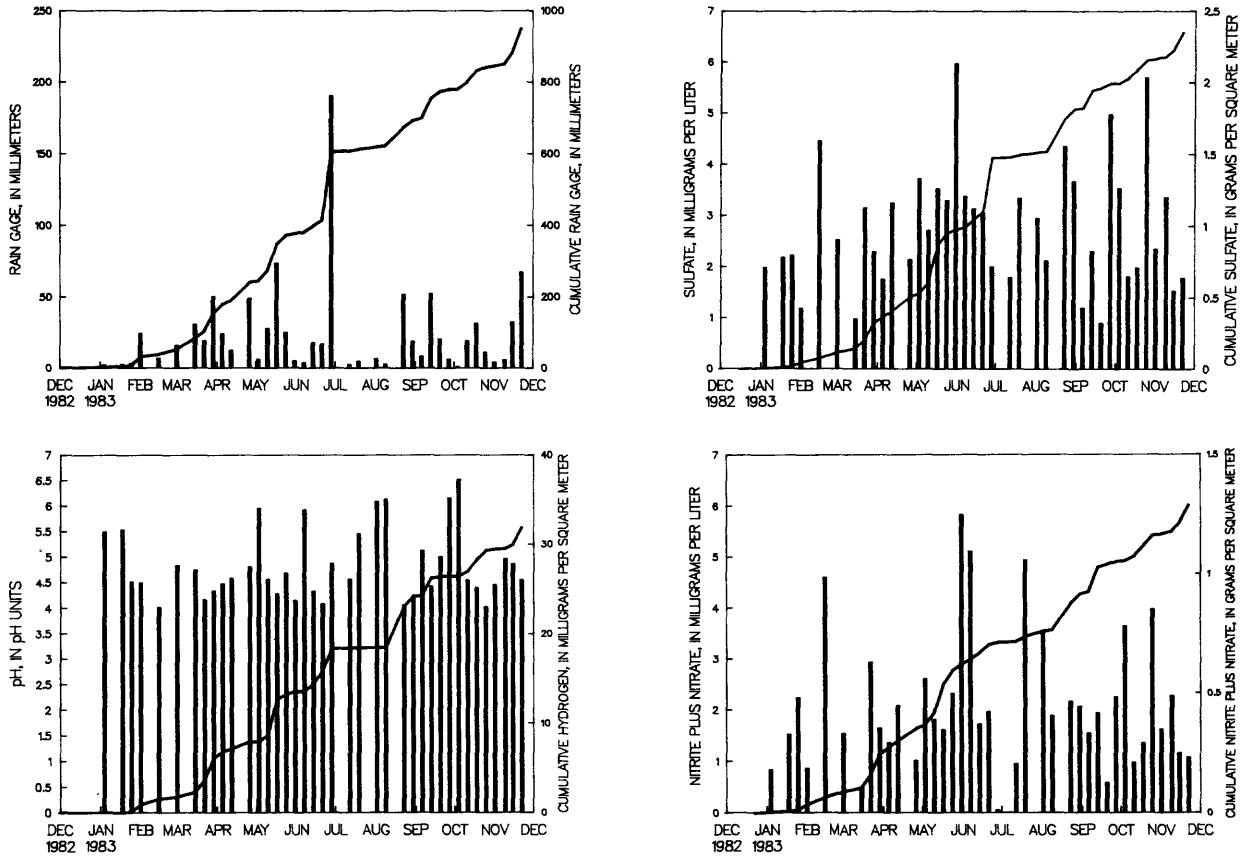
Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 73.6
Percent of total measured ppt with chemical samples: 94.9
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 97.9

Total measured ppt, in mm: 1001.3

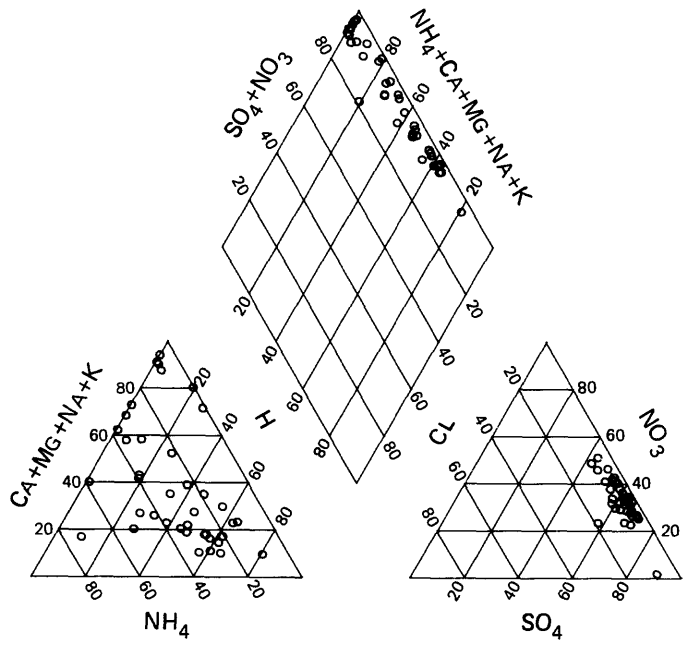
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	8.0	4.01	0.03	0.008	0.015	0.006	0.01	0.05	0.05	0.90	3.02E-04
10 percentile	.10	10.2	4.08	.10	.018	.020	.014	.11	.06	.83	1.20	8.32E-04
25 percentile	2.50	17.4	4.33	.18	.033	.042	.020	.21	.09	1.16	1.98	7.59E-03
50 percentile	8.10	22.6	4.56	.34	.056	.070	.032	.43	.13	1.81	2.52	2.75E-02
75 percentile	24.25	27.0	5.12	.69	.134	.130	.062	.64	.20	2.31	3.38	4.68E-02
90 percentile	51.08	42.0	6.08	1.93	.332	.282	.084	1.21	.38	4.60	4.46	8.32E-02
Maximum value	190.30	59.3	6.52	2.61	.612	.918	.167	1.44	.50	5.82	5.96	9.77E-02
Volume-weighted mean	NA	22.0	4.48	.35	.059	.063	.030	.35	.12	1.36	2.48	3.35E-02
Arithmetic mean	18.89	24.5	4.83	.63	.120	.120	.043	.51	.17	2.10	2.78	3.09E-02
No. of samples	53	39	39	39	39	39	39	39	39	39	39	39
Total load, g/m2	NA	NA	NA	0.335	0.056	0.060	0.029	0.337	0.117	1.289	2.352	3.2E-02
Maximum interval load, g/m2	NA	NA	NA	.101	.010	.017	.007	.034	.025	0.118	0.380	4.6E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.05	-0.27	-.40	-.49	-.53	-.36	-.14	-.44	-.29	-.14	0.27
P-level		.628	.017	.000	.000	.000	.001	.226	.000	.010	.195	0.017



Percentiles of volume-weighted mean concentrations for site IL18, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site IL18. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site IL18.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

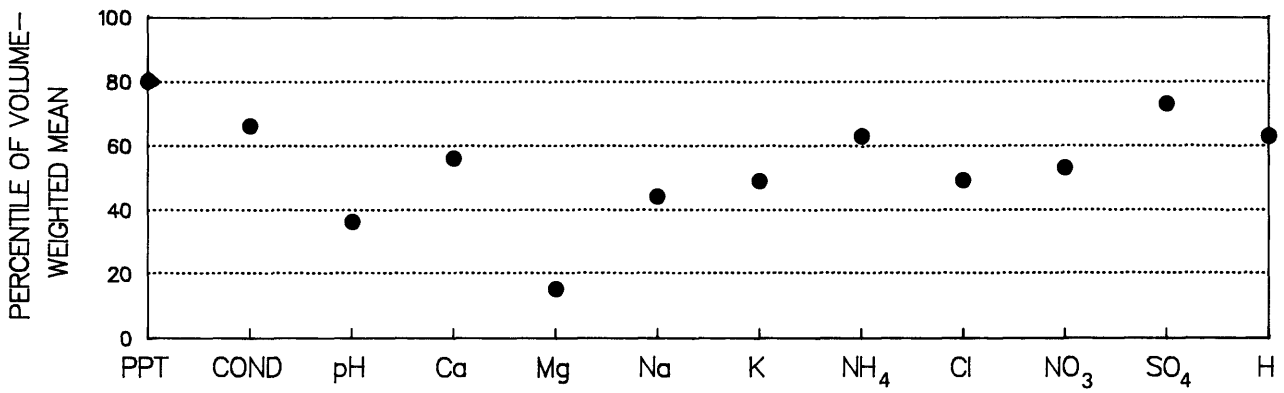
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Dixon Springs, Illinois — Latitude: 37°26'08" Longitude: 88°40'19"
CAL number: IL63 — Map ID number: 31
ADS number: 023a00
Station altitude above mean sea level, in meters: 161
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 53 (371)
-- When ppt occurred: 47 (329)
-- When ppt did not occur: 6 (42)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 37 (259)

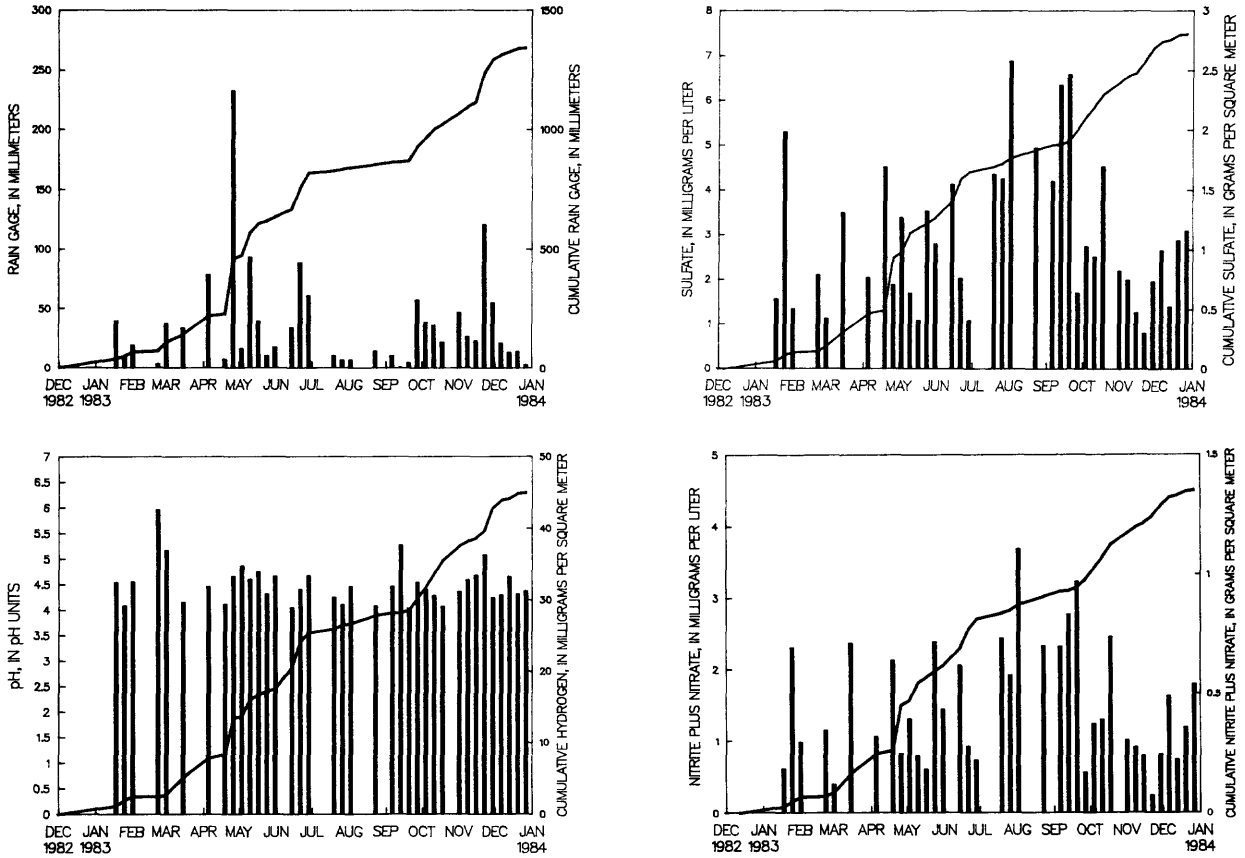
Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 81.1
Percent of total measured ppt with chemical samples: 91.7
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 88.8

Total measured ppt, in mm: 1466.0

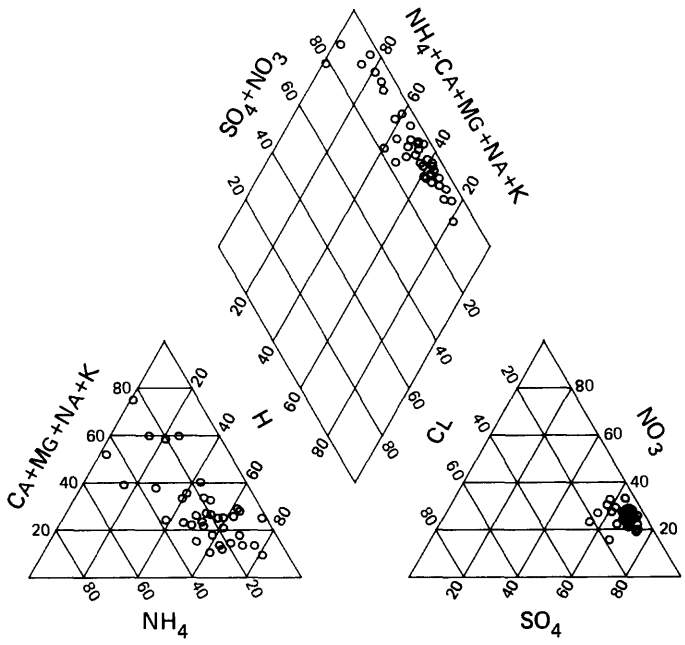
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	5.8	4.04	0.04	0.009	0.019	0.003	0.01	0.06	0.24	0.79	1.10E-03
10 percentile	.00	10.7	4.08	.07	.011	.035	.011	.09	.09	.59	1.11	8.01E-03
25 percentile	.50	16.1	4.24	.09	.020	.051	.017	.15	.14	.80	1.69	2.19E-02
50 percentile	14.00	25.3	4.46	.22	.028	.097	.029	.28	.18	1.24	2.65	3.47E-02
75 percantile	37.70	36.5	4.66	.49	.058	.169	.052	.52	.27	2.32	4.21	5.69E-02
90 percentile	72.90	45.7	5.10	.86	.100	.299	.082	.72	.43	2.52	5.49	8.36E-02
Maximum value	232.40	56.7	5.96	1.35	.239	1.220	.133	1.85	.86	3.69	6.87	9.12E-02
Volume-weighted mean	NA	20.1	4.48	.17	.025	.091	.030	.27	.16	1.01	2.09	3.35E-02
Arithmetic mean	27.66	26.1	4.50	.34	.046	.154	.038	.40	.22	1.50	2.97	4.17E-02
No. of samples	53	37	37	37	37	37	37	37	37	37	37	37
Total load, g/m2	NA	NA	NA	0.226	0.033	0.122	0.040	0.360	0.214	1.352	2.806	4.5E-02
Maximum interval load, g/m2	NA	NA	NA	.030	.005	.026	.010	.091	.037	0.191	0.437	5.1E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.37	0.17	-.57	0.63	-.37	-.35	-.40	-.47	-.49	-.52	-0.17
P-level		.001	.154	.000	.000	.001	.002	.001	.000	.000	.000	0.154



Percentiles of volume-weighted mean concentrations for site IL63, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site IL63. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site IL63.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

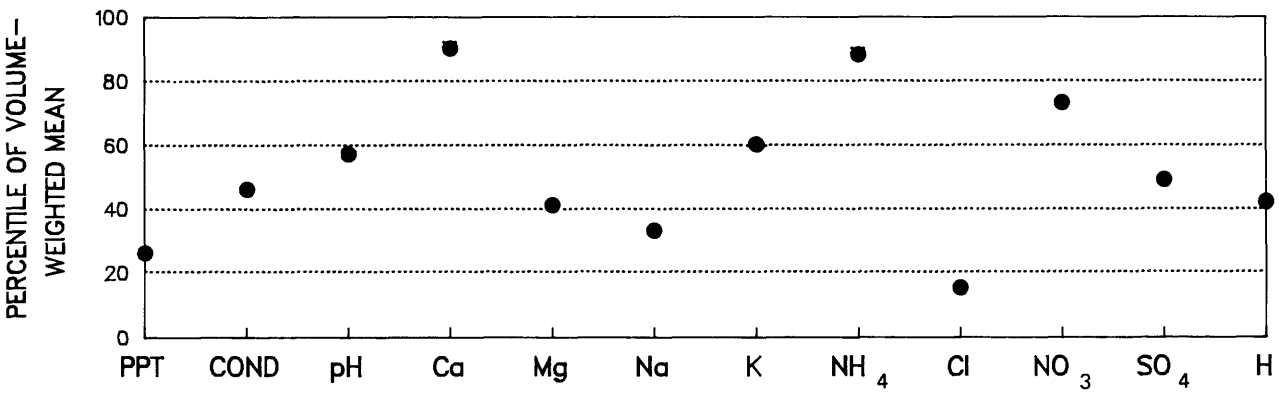
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Konza Prairie, Kansas — Latitude: 39°06'08" Longitude: 96°36'33"
CAL number: KS31 — Map ID number: 33
ADS number: 273a00
Station altitude above mean sea level, in meters: 344
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 52 (371)
-- When ppt occurred: 48 (343)
-- When ppt did not occur: 4 (28)
-- When sample volume was substituted for missing rain gage: 1 (7)
-- With chemical samples: 38 (273)

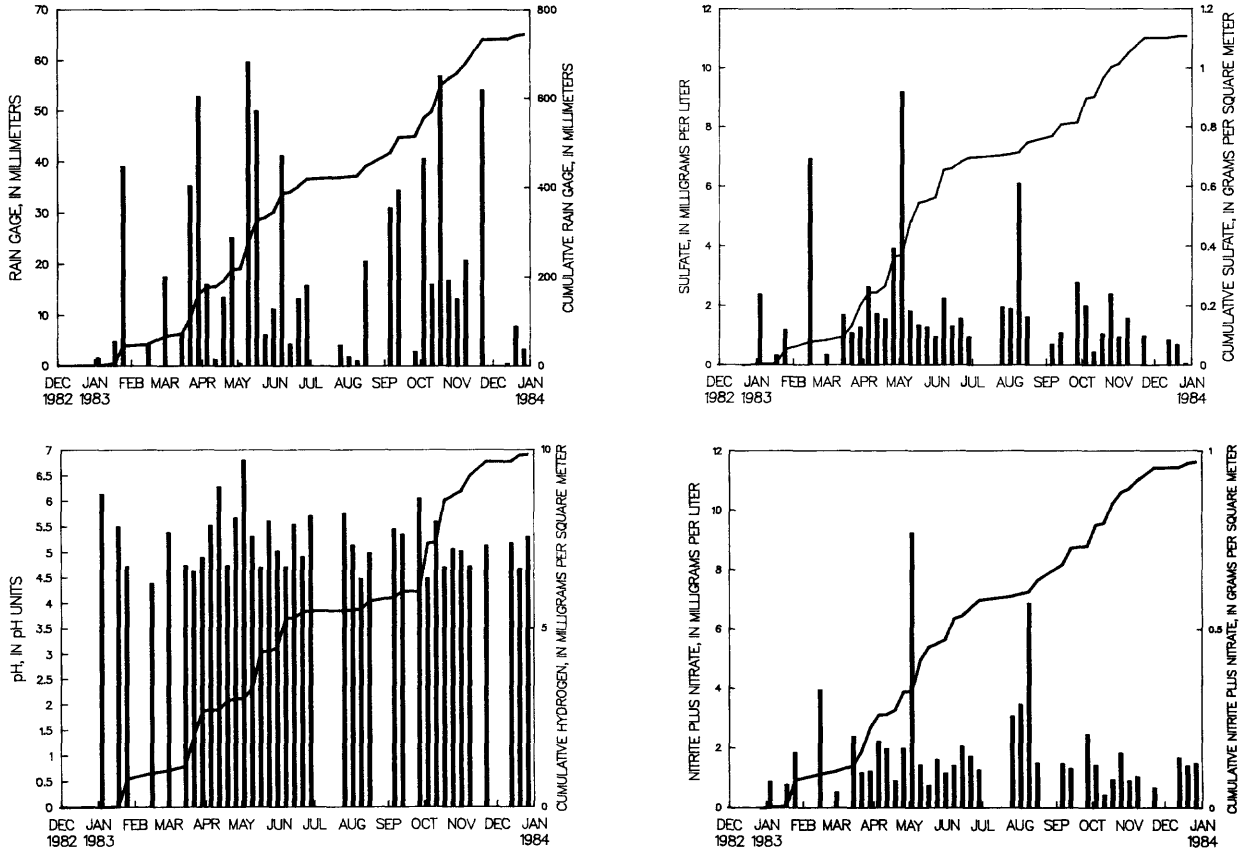
Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 52 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 81.1
Percent of total measured ppt with chemical samples: 98.0
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 97.3

Total measured ppt, in mm: 760.2

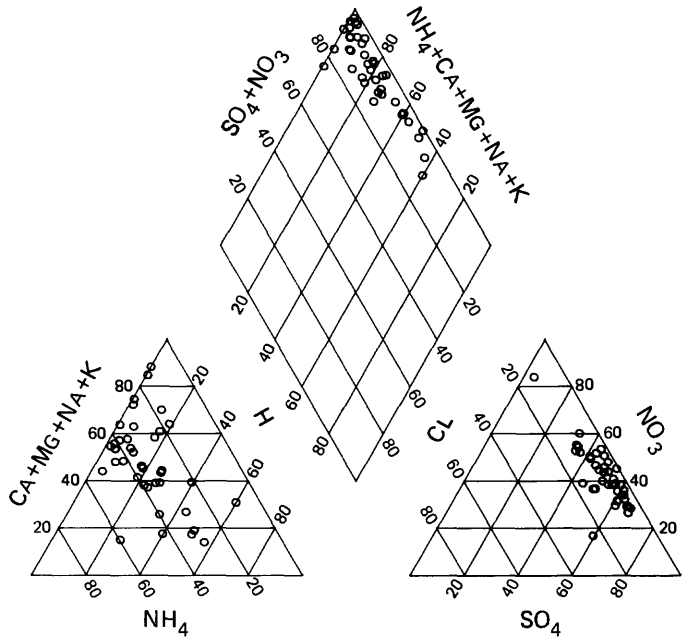
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	4.0	4.38	0.05	0.009	0.024	0.008	0.06	0.01	0.42	0.05	1.58E-04
10 percentile	.00	6.4	4.61	.10	.013	.032	.011	.11	.05	.73	.43	8.75E-04
25 percentile	.35	8.8	4.71	.15	.021	.044	.017	.20	.08	1.01	.95	2.81E-03
50 percentile	6.25	13.3	5.12	.32	.035	.080	.045	.38	.11	1.44	1.45	7.50E-03
75 percentile	20.75	16.6	5.55	.81	.073	.168	.062	.59	.20	2.00	2.06	1.95E-02
90 percentile	47.36	22.7	6.06	1.38	.138	.477	.146	.81	.48	3.51	4.12	2.49E-02
Maximum value	59.70	80.6	6.80	10.57	.470	1.500	.518	1.63	1.14	9.24	9.17	4.17E-02
Volume-weighted mean	NA	12.6	4.88	.34	.034	.081	.033	.37	.11	1.30	1.49	1.32E-02
Arithmetic mean	14.62	15.7	5.20	.77	.069	.168	.063	.46	.19	1.90	1.91	1.11E-02
No. of samples	52	38	38	38	38	38	38	38	38	38	38	38
Total load, g/m2	NA	NA	NA	0.251	0.025	0.060	0.024	0.276	0.083	0.968	1.108	9.9E-03
Maximum interval load, g/m2	NA	NA	NA	.041	.003	.007	.003	.029	.010	.085	0.109	1.3E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.14	-0.30	-.34	-.45	-.42	-.43	-.15	-.37	-.36	-.12	0.30
P-level		.213	.007	.003	.000	.000	.000	.195	.001	.001	.279	.007



Percentiles of volume-weighted mean concentrations for site KS31, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site KS31. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site KS31.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

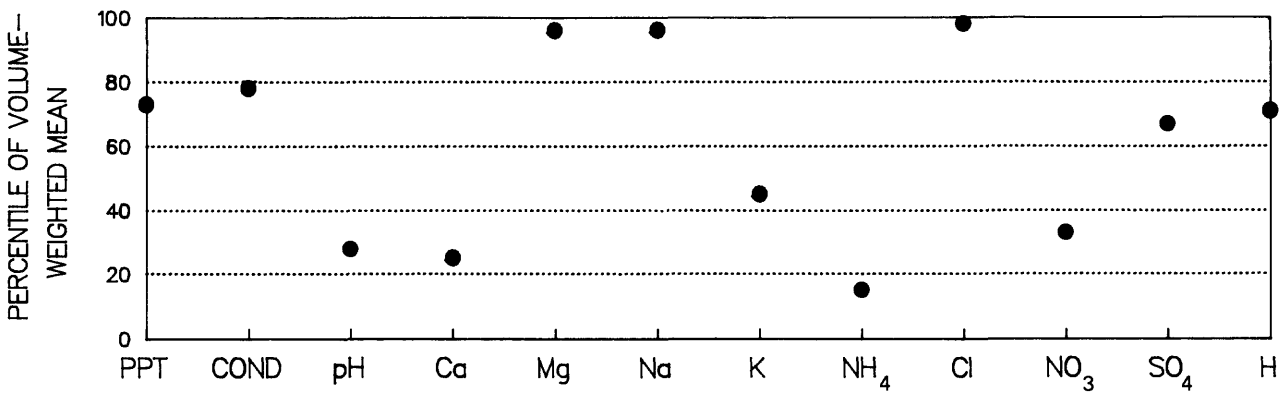
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: East, Massachusetts — Latitude: 42°23'02" Longitude: 71°12'53"
CAL number: MA13 — Map ID number: 40
ADS number: 277a00
Station altitude above mean sea level, in meters: 20
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 53 (371)
-- When ppt occurred: 50 (350)
-- When ppt did not occur: 3 (21)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 39 (273)

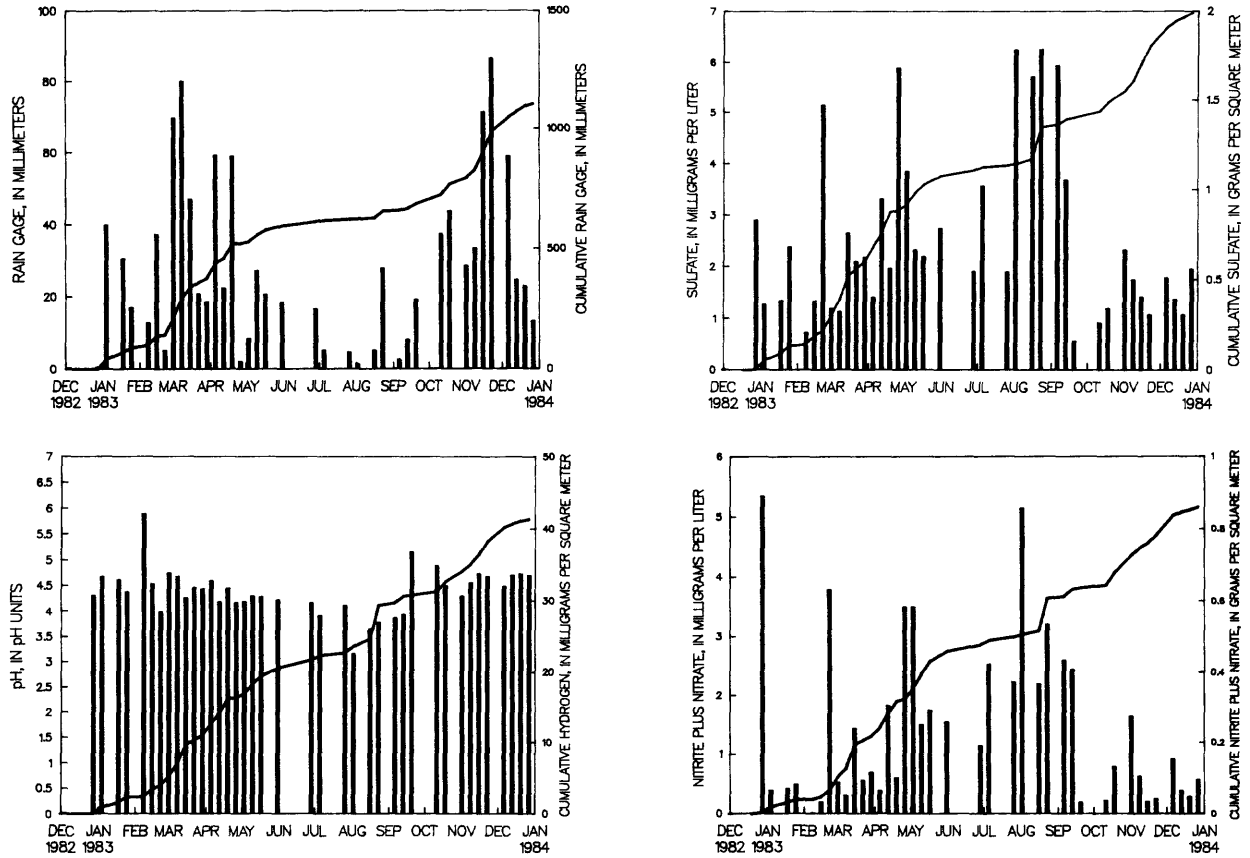
Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 79.2
Percent of total measured ppt with chemical samples: 82.7
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 96.7

Total measured ppt, in mm: 1337.2

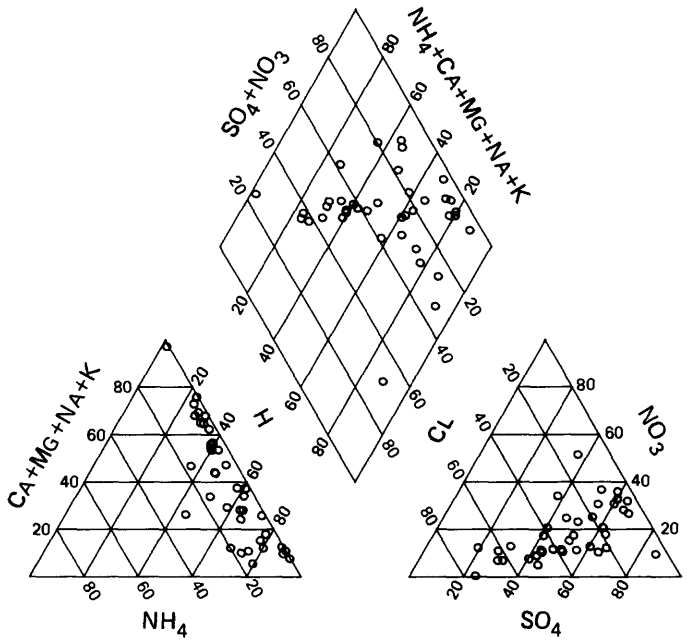
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	5.8	3.15	0.02	0.009	0.033	0.002	0.01	0.05	0.01	0.56	1.29E-03
10 percentile	.82	11.3	3.86	.03	.021	.054	.008	.01	.14	.20	1.07	1.82E-02
25 percentile	6.00	15.7	4.16	.06	.029	.098	.013	.03	.38	.39	1.33	2.14E-02
50 percentile	20.80	27.0	4.43	.09	.079	.344	.025	.07	1.03	.79	1.96	3.72E-02
75 percentile	37.30	43.2	4.67	.21	.141	.743	.044	.19	1.71	2.23	3.31	6.92E-02
90 percentile	59.08	67.1	4.74	.37	.200	1.180	.064	.29	2.73	3.49	5.88	1.38E-01
Maximum value	86.60	402.8	5.89	.97	.290	1.970	.126	.79	16.41	5.34	6.24	7.08E-01
Volume-weighted mean	NA	22.8	4.43	.08	.079	.532	.028	.10	1.07	0.78	1.80	3.74E-02
Arithmetic mean	25.23	40.5	4.39	.17	.092	.492	.032	.14	1.53	1.44	2.52	7.09E-02
No. of samples	53	39	39	39	39	39	39	39	39	39	39	39
Total load, g/m2	NA	NA	NA	0.093	0.088	0.588	0.031	0.106	1.180	0.860	1.992	4.1E-02
Maximum interval load, g/m2	NA	NA	NA	.006	.012	.093	.004	.016	0.175	.089	0.175	4.6E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.47	0.43	-.54	-.25	.02	-.16	-.12	-.22	-.49	-.46	-0.43
P-level		.000	.000	.000	.026	.885	.167	.293	.051	.000	.000	.000



Percentiles of volume-weighted mean concentrations for site MA13, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site MA13.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site MA13.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

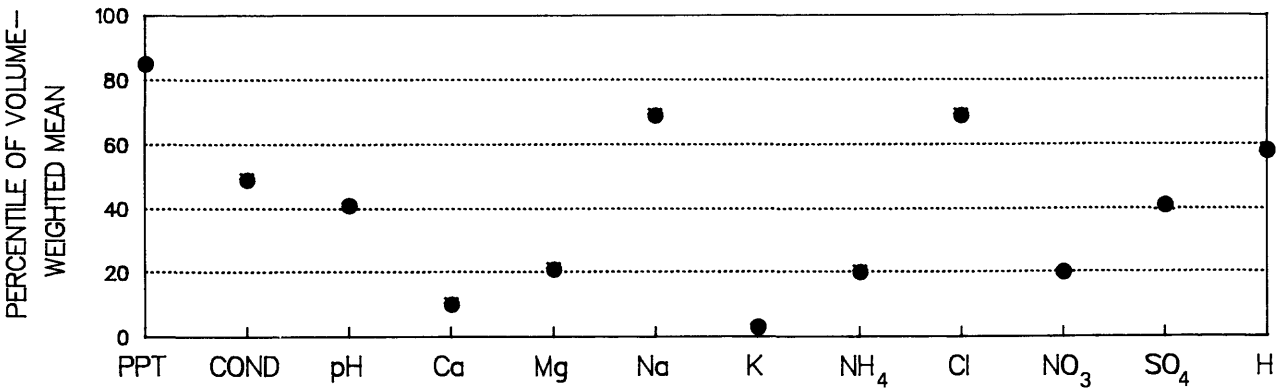
STATION: Bridgton, Maine — Latitude: 44°06'27" Longitude: 70°43'44"
CAL number: ME02 — Map ID number: 42
ADS number: 164a00
Station altitude above mean sea level, in meters: 222
Number of sampling intervals (days in parenthesis):

-- With ppt measurements:	46	(322)
-- When ppt occurred:	46	(322)
-- When ppt did not occur:	0	(0)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	42	(294)

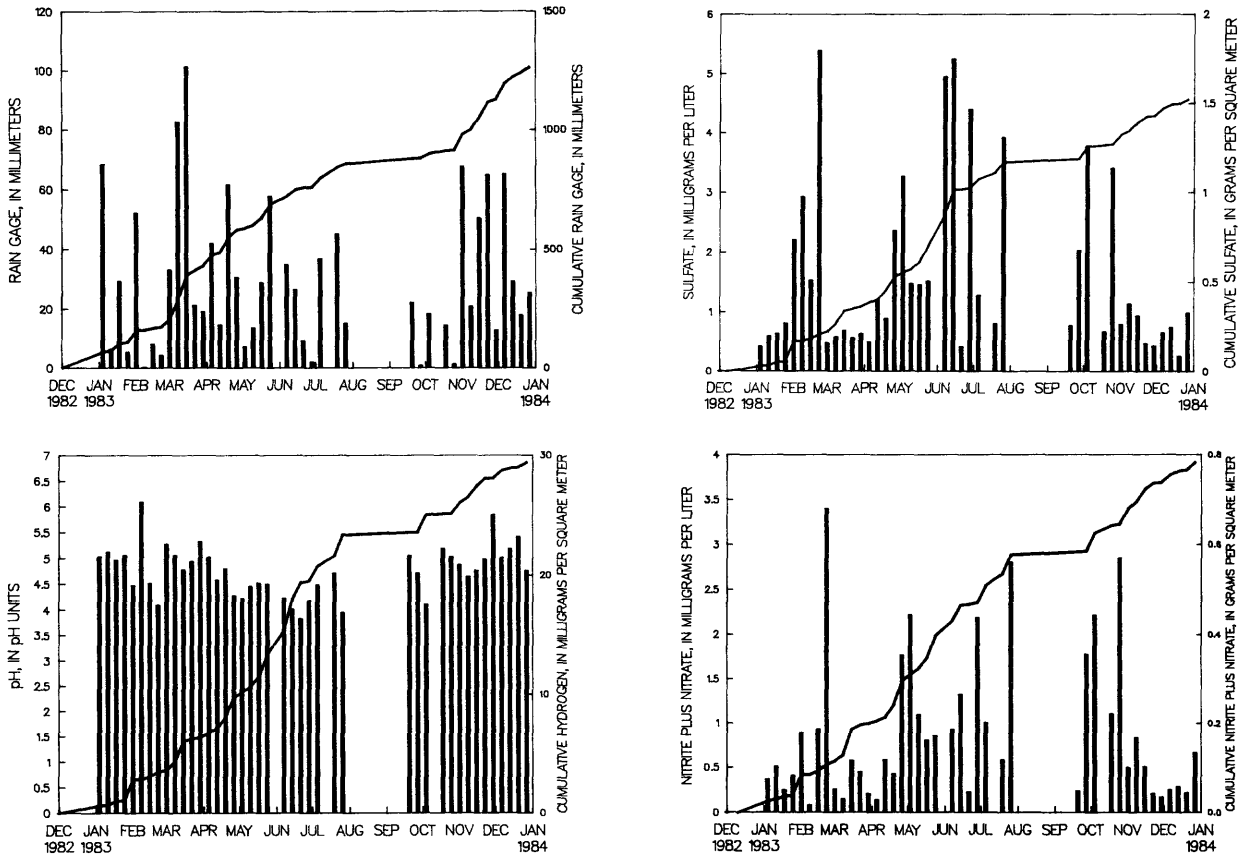
Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)

Percent summary period with ppt measurements:	86.8
Percent summary period with chemical samples or no ppt:	79.2
Percent of total measured ppt with chemical samples:	94.3
Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	95.0
Total measured ppt, in mm:	1342.7

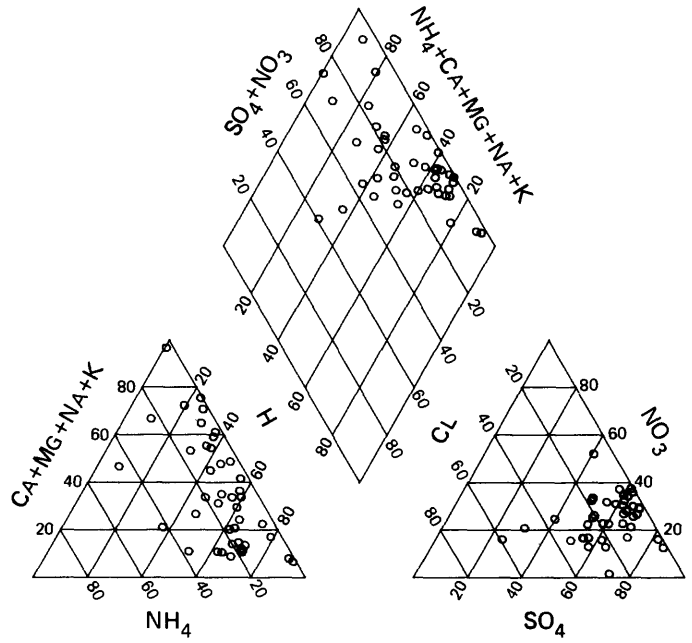
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.6	3.82	0.01	0.005	0.015	0.004	0.01	0.01	0.08	0.26	8.13E-04
10 percentile	1.15	5.2	4.09	.02	.008	.025	.005	.01	.04	.18	.44	4.96E-03
25 percentile	8.85	6.6	4.46	.03	.016	.038	.008	.04	.08	.25	.62	8.91E-03
50 percentile	21.70	12.3	4.77	.06	.024	.089	.013	.06	.17	.58	.91	1.70E-02
75 percentile	46.32	23.7	5.05	.13	.038	.203	.023	.14	.25	1.10	2.25	3.43E-02
90 percentile	65.78	47.6	5.30	.38	.146	.581	.047	.62	.72	2.22	4.25	8.07E-02
Maximum value	101.40	64.7	6.09	1.85	.346	.738	.251	.97	1.49	3.40	5.38	1.51E-01
Volume-weighted mean	NA	13.6	4.63	.06	.029	.159	.015	.11	.29	.62	1.20	2.32E-02
Arithmetic mean	29.19	18.4	4.76	.15	.046	.159	.028	.17	.26	.89	1.62	3.02E-02
No. of samples	46	42	42	42	42	42	42	42	42	42	42	42
Total load, g/m2	NA	NA	NA	0.074	0.036	0.201	0.019	0.139	0.363	0.783	1.523	2.9E-02
Maximum interval load, g/m2	NA	NA	NA	.006	.008	.063	.003	.027	.124	.059	0.172	2.6E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.22	0.07	-.52	-.37	-.13	-.19	-.19	-.15	-.23	-.24	-0.07
P-level		.042	.530	.000	.001	.233	.075	.093	.165	.035	.029	.530



Percentiles of volume-weighted mean concentrations for site ME02, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site ME02.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site ME02.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

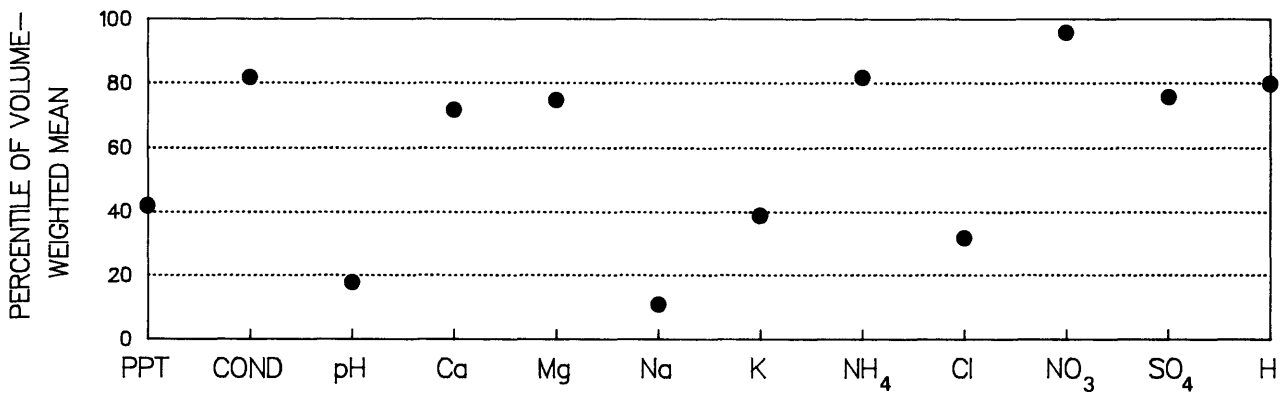
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Wellston, Michigan (composite data from sites 033a00 and 033a01) Latitude: 44°13'28" Longitude: 85°49'07"
CAL number: MI53 Map ID number: 47
ADS number: 033a
Station altitude above mean sea level, in meters: 292
Number of sampling intervals (deys in parenthesis):
-- With ppt measurements: 53 (371)
-- When ppt occurred: 51 (357)
-- When ppt did not occur: 2 (14)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemicel samples: 46 (322)

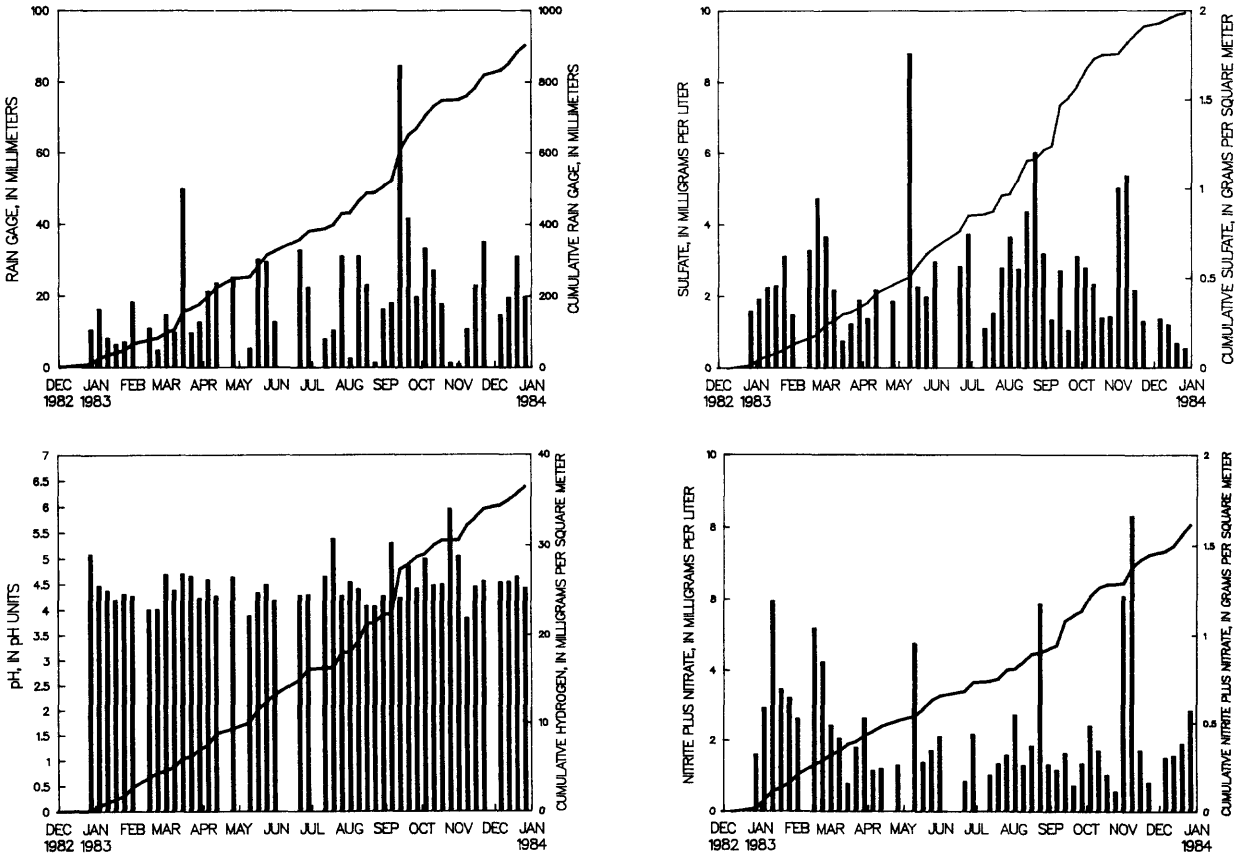
Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 90.6
Percent of total measured ppt with chemical samples: 92.3
Percent of total measured ppt in raingage thet wes collected in the wet-sample bucket: 87.8

Total measured ppt, in mm: 980.7

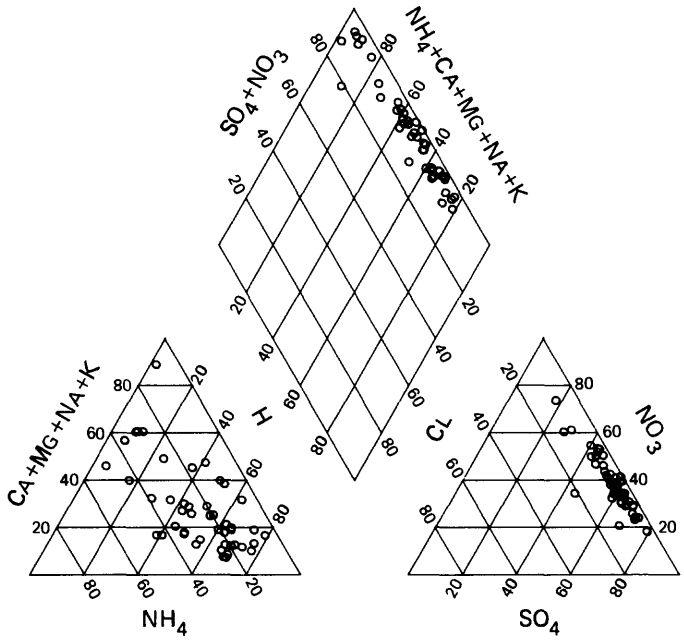
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	8.7	3.83	0.05	0.010	0.012	0.006	0.03	0.01	0.56	0.53	1.12E-03
10 percentile	1.12	10.9	4.04	.07	.018	.023	.013	.08	.07	.83	1.07	8.88E-03
25 percentile	7.50	16.5	4.27	.13	.027	.033	.017	.18	.09	1.30	1.38	2.28E-02
50 percentile	16.30	23.8	4.43	.21	.040	.047	.022	.35	.13	1.71	2.20	3.72E-02
75 percentile	26.20	30.8	4.64	.36	.072	.107	.043	.59	.19	2.76	3.12	5.40E-02
90 percentile	34.38	54.9	5.05	.70	.138	.222	.071	.94	.33	5.40	4.81	9.03E-02
Maximum value	84.60	90.9	5.95	1.20	.379	.273	.163	1.56	.56	8.32	8.78	1.48E-01
Volume-weighted mean	NA	23.4	4.39	.22	.048	.052	.027	.34	.13	1.79	2.20	4.03E-02
Arithmetic mean	18.50	27.3	4.49	.30	.065	.080	.036	.43	.17	2.34	2.54	4.36E-02
No. of samples	53	46	46	46	46	46	46	46	46	46	46	46
Total load, g/m2	NA	NA	NA	0.200	0.043	0.047	0.025	0.311	0.117	1.618	1.987	3.6E-02
Maximum interval load, g/m2	NA	NA	NA	.029	.008	.003	.002	.033	0.008	0.139	0.229	5.0E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.25	0.09	-.35	-.36	-.46	-.23	-.28	-.34	-.39	-.21	-0.09
P-level		.016	.388	.001	.000	.000	.028	.021	.001	.000	.044	.388



Percentiles of volume-weighted mean concentrations for site MI53, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site MI53. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site MI53.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

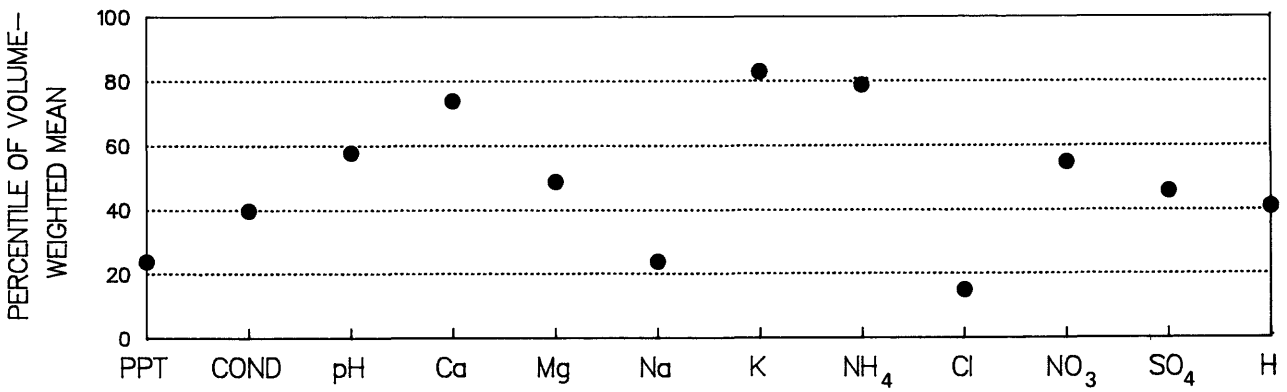
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Marcell, Minnesota — Latitude: 47°31'52" Longitude: 93°28'07"
CAL number: MN16 — Map ID number: 48
ADS number: 034a00
Station altitude above mean sea level, in meters: 431
Number of sampling intervals (days in parenthesis):

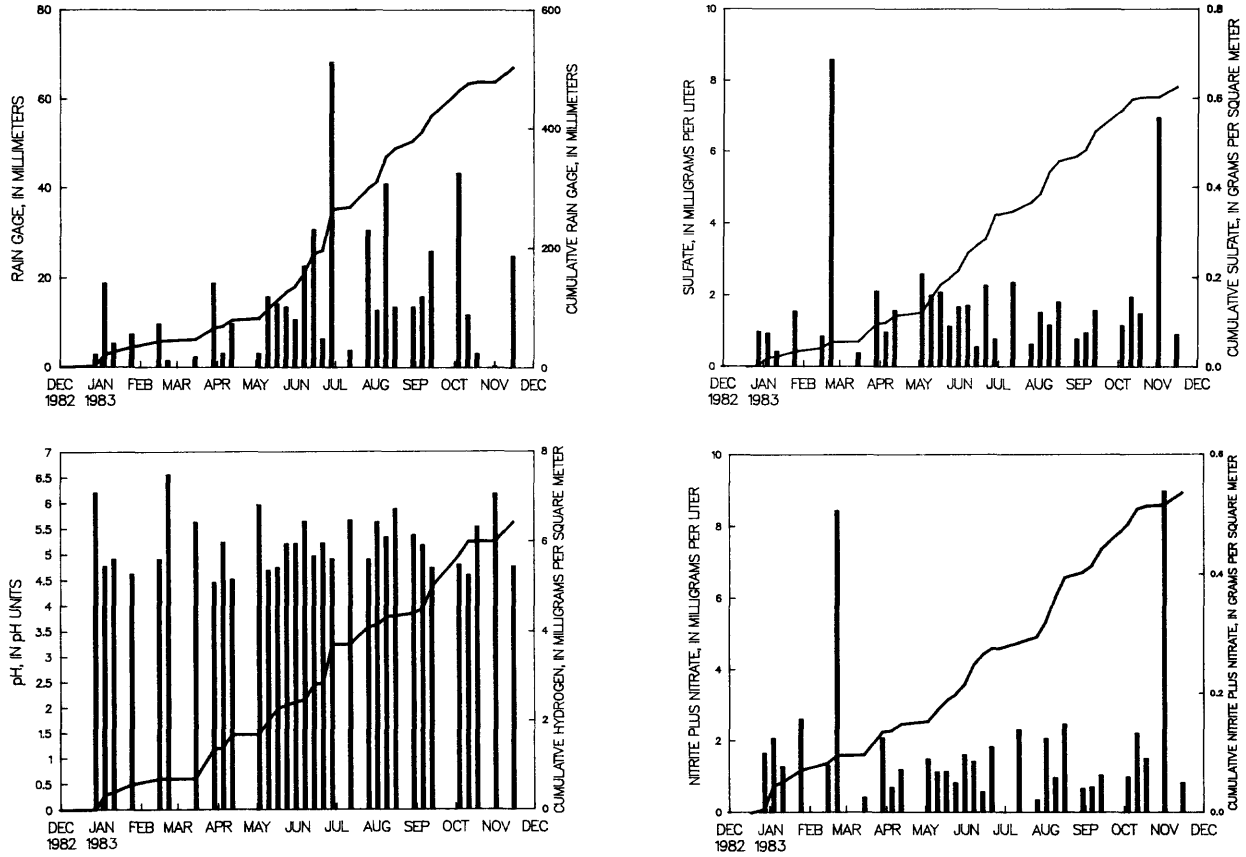
-- With ppt measurements:	53	(371)
-- When ppt occurred:	50	(350)
-- When ppt did not occur:	3	(21)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	32	(224)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 66.0
Percent of total measured ppt with chemical samples: 71.7
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 93.6
Total measured ppt, in mm: 704.1

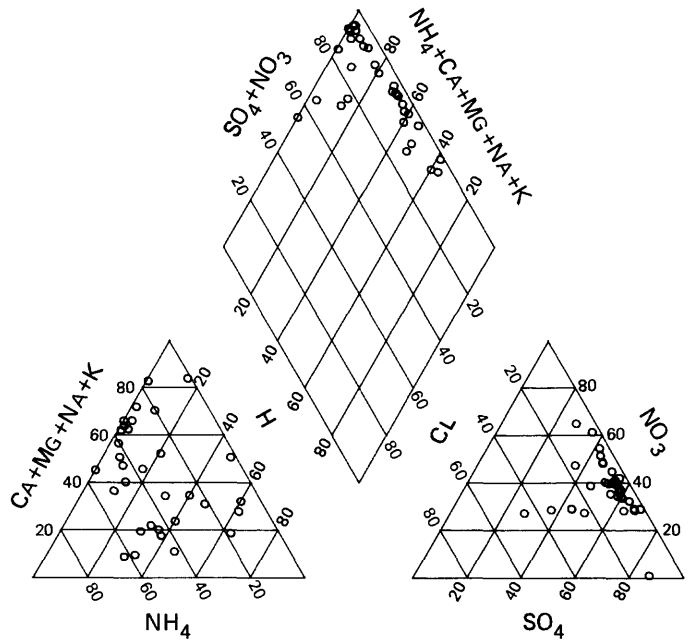
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	3.8	4.45	0.05	0.008	0.018	0.009	0.01	0.01	0.01	0.38	2.82E-04
10 percentile	.30	6.4	4.60	.06	.014	.025	.013	.05	.06	.45	.57	8.02E-04
25 percentile	2.80	8.9	4.76	.10	.021	.033	.024	.15	.07	.81	.91	2.36E-03
50 percentile	9.70	12.8	5.18	.20	.036	.046	.035	.39	.10	1.28	1.51	6.54E-03
75 percentile	18.80	15.6	5.63	.56	.086	.110	.096	.62	.20	2.07	1.99	1.73E-02
90 percentile	35.04	21.8	6.11	.94	.140	1.133	.145	.76	.78	2.57	2.52	2.52E-02
Maximum value	68.30	81.6	6.55	1.30	.228	5.560	2.466	4.18	8.48	8.97	8.57	3.55E-02
Volume-weighted mean	NA	11.6	4.89	.23	.038	.068	.041	.32	.11	1.06	1.24	1.28E-02
Arithmetic mean	13.28	15.7	5.21	.34	.057	.386	.135	.58	.44	1.77	1.76	1.07E-02
No. of samples	53	32	32	32	32	32	32	32	32	32	32	32
Total load, g/m2	NA	NA	NA	0.114	0.019	0.034	0.021	0.159	0.055	0.536	0.626	6.4E-03
Maximum interval load, g/m2	NA	NA	NA	.015	.003	.004	.003	.016	.005	.042	.053	8.6E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.20	-0.36	-.37	-.40	-.59	-.35	-.25	-.56	-.36	-.23	0.36
P-level		.119	.004	.003	.001	.000	.005	.044	.000	.005	.064	.004



Percentiles of volume-weighted mean concentrations for site MN16, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site MN16. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site MN16.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

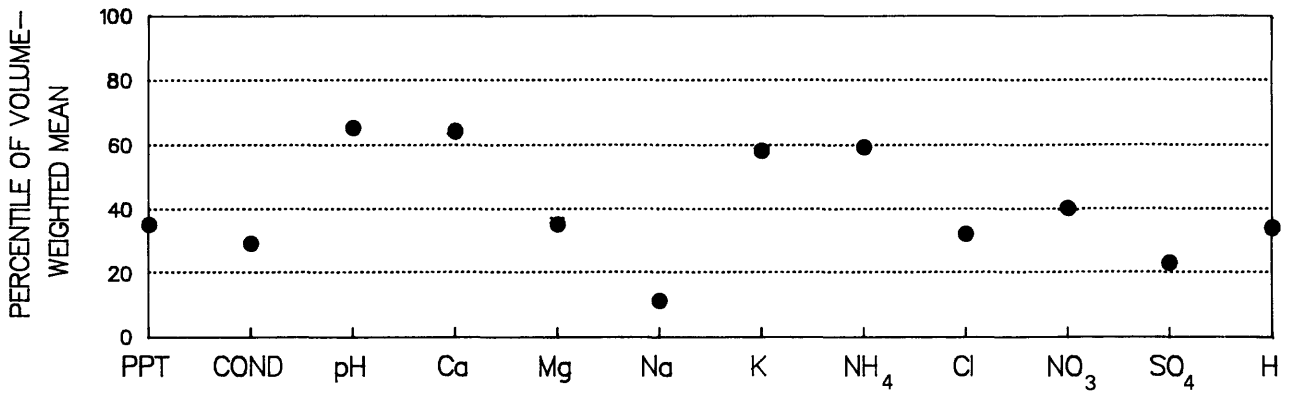
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Fernberg, Minnesota — Latitude: 47°56'45" Longitude: 91°29'43"
CAL number: MN18 — Map ID number: 49
ADS number: 166a02
Station altitude above mean sea level, in meters: 524
Number of sampling intervals (days in parenthesis):

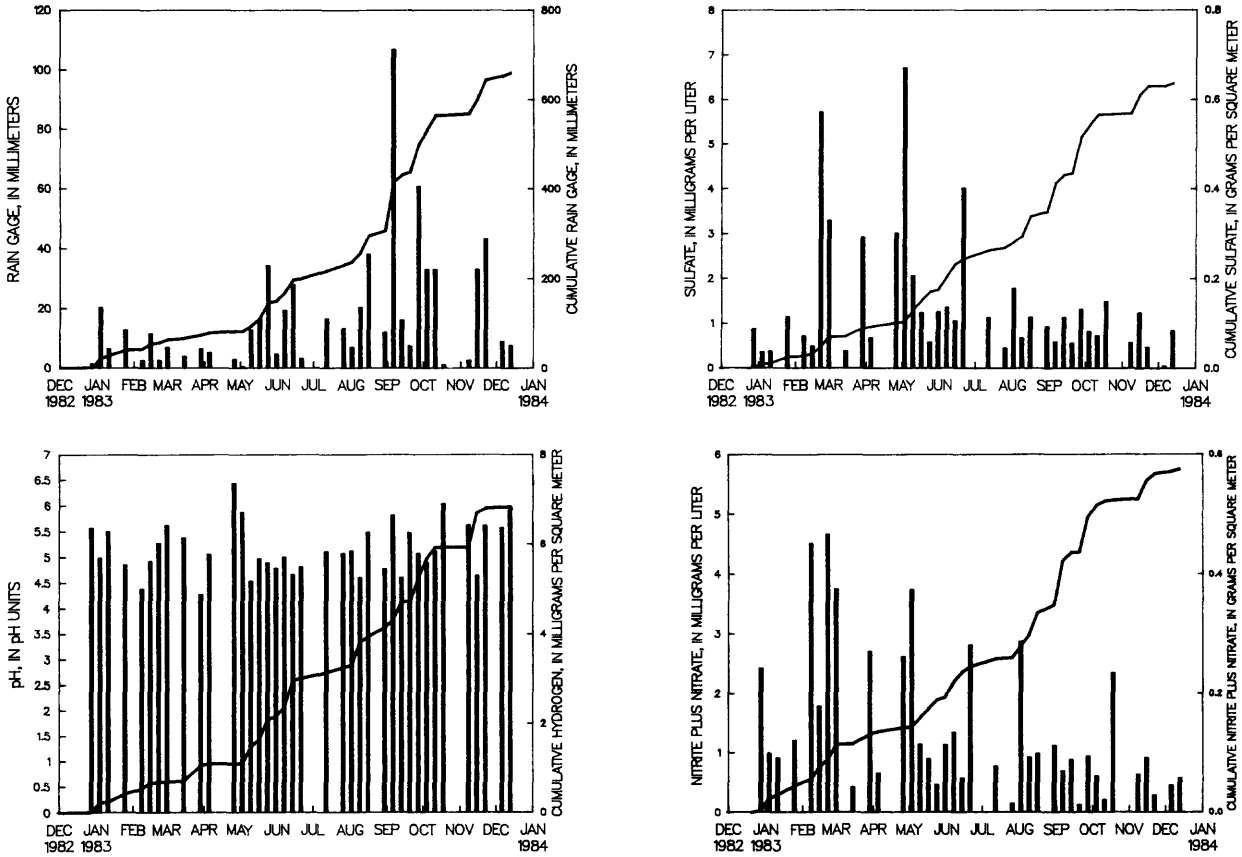
-- With ppt measurements:	52	(371)
-- When ppt occurred:	48	(343)
-- When ppt did not occur:	4	(28)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	38	(286)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 52 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 79.2
Percent of total measured ppt with chemical samples: 74.2
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 82.9
Total measured ppt, in mm: 890.1

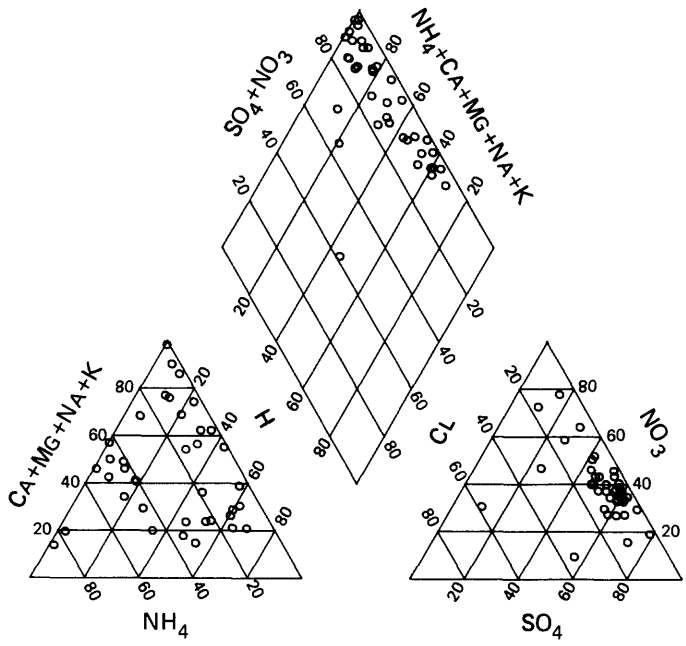
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.9	4.27	0.03	0.010	0.017	0.006	0.01	0.01	0.12	0.05	3.72E-04
10 percentile	0.00	3.7	4.59	.06	.013	.021	.009	.01	.05	.27	.38	1.32E-03
25 percentile	2.50	5.7	4.80	.12	.022	.028	.013	.05	.07	.59	.58	2.74E-03
50 percentile	7.50	10.2	5.07	.18	.038	.059	.027	.15	.11	.93	.99	8.51E-03
75 percentile	20.30	14.4	5.56	.28	.054	.104	.058	.35	.20	2.36	1.39	1.58E-02
90 percentile	48.52	29.9	5.88	.54	.131	.159	.110	1.07	.32	3.74	3.36	2.56E-02
Maximum value	106.70	31.6	6.43	2.32	.763	.777	.278	2.68	1.94	4.66	6.70	5.37E-02
Volume-weighted mean	NA	9.1	4.99	.19	.033	.052	.032	.25	.13	.87	.96	1.03E-02
Arithmetic mean	17.12	12.3	5.17	.30	.064	.089	.046	.36	.19	1.42	1.42	1.15E-02
No. of samples	52	38	38	38	38	38	38	38	38	38	38	38
Total load, g/m2	NA	NA	NA	0.124	0.022	0.034	0.021	0.165	0.083	0.575	0.637	6.8E-03
Maximum interval load, g/m2	NA	NA	NA	.027	.004	.006	.004	.034	.022	.074	.080	7.6E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.26	-0.15	-.33	-.46	-.56	-.20	-.01	-.41	-.35	-.20	0.15
P-level		.021	.178	.004	.000	.000	.087	.899	.000	.002	.082	.178



Percentiles of volume-weighted mean concentrations for site MN18, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site MN18. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site MN18.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

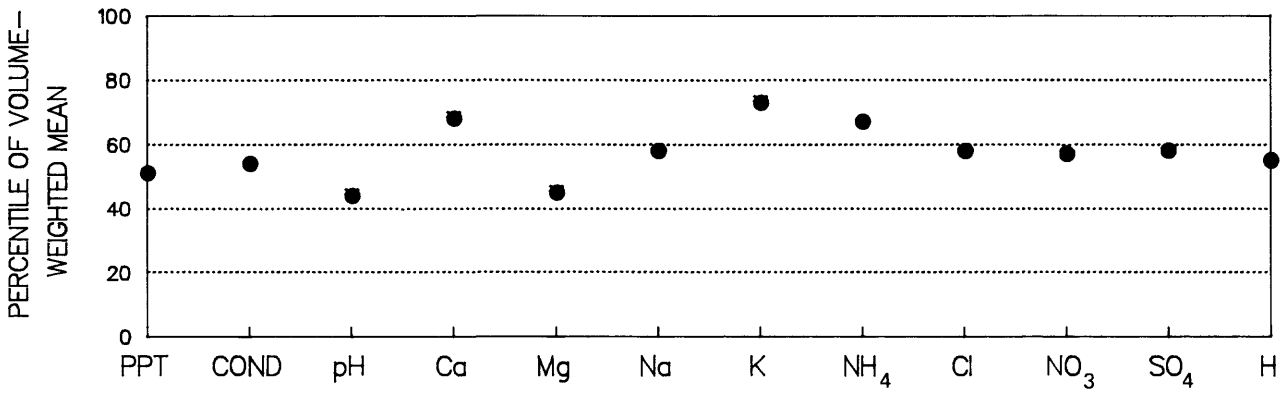
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: University Forest, Missouri — Latitude: 36°54'39" Longitude: 90°19'06"
CAL number: MO05 — Map ID number: 53
ADS number: 253e00
Station altitude above mean sea level, in meters: 154
Number of sampling intervals (days in parenthesis):

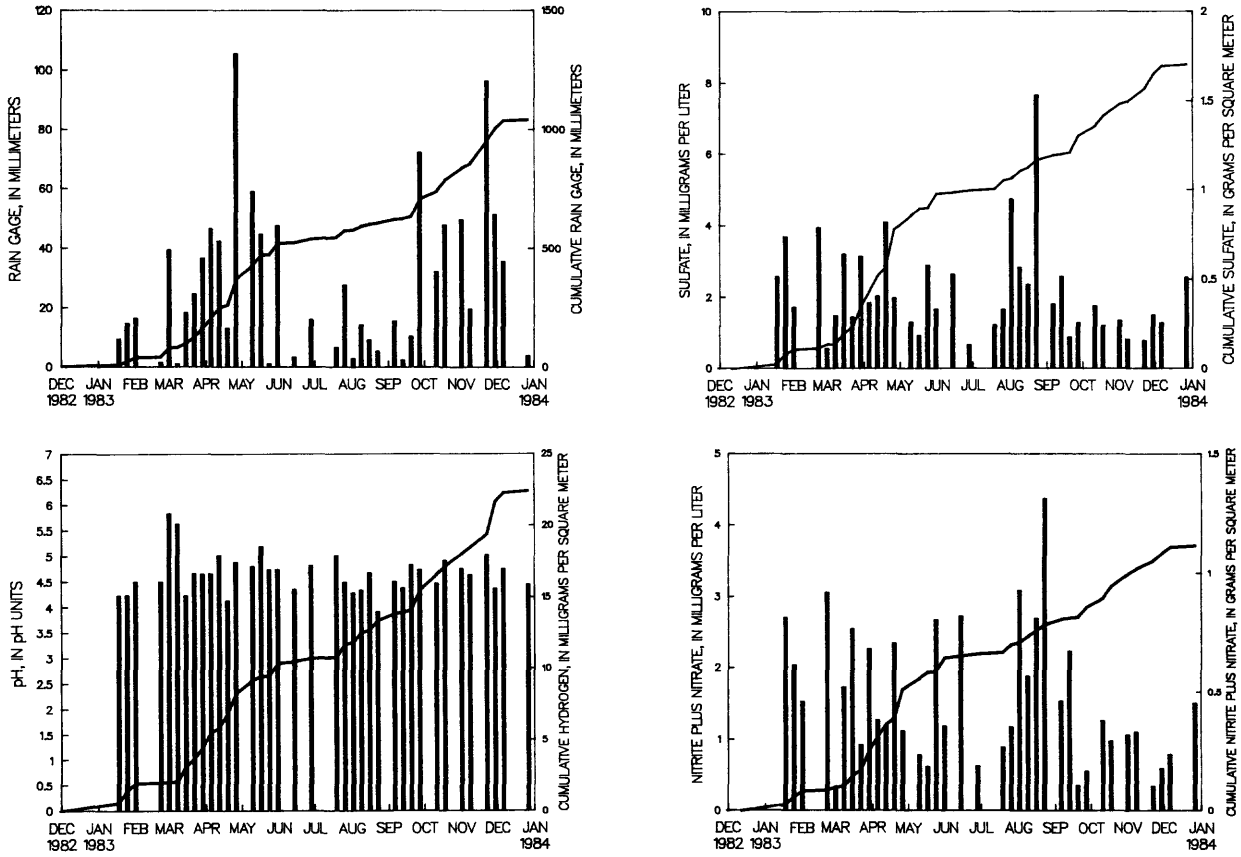
-- With ppt measurements:	53	(371)
-- When ppt occurred:	50	(350)
-- When ppt did not occur:	3	(21)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	37	(259)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 75.5
Percent of total measured ppt with chemical samples: 91.3
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 96.1
Total measured ppt, in mm: 1142.2

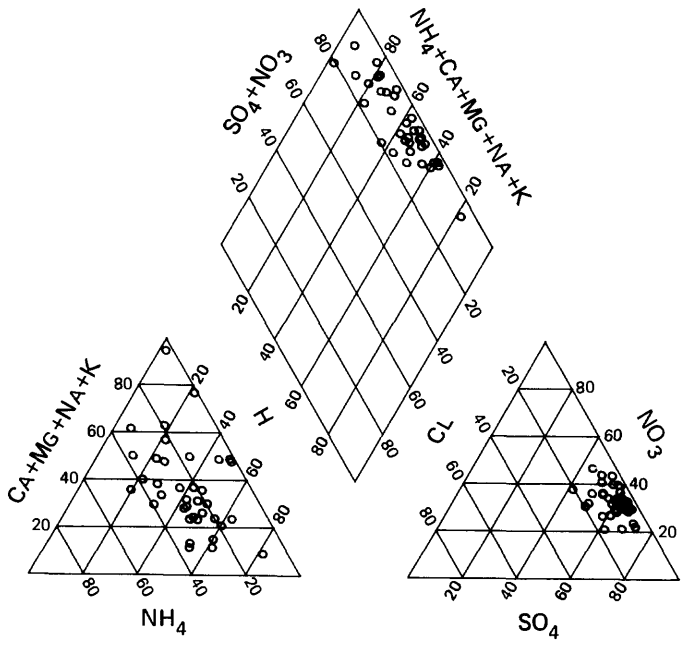
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	3.3	3.91	0.03	0.007	0.019	0.010	0.01	0.03	0.32	0.55	1.48E-03
10 percentile	.00	8.5	4.23	.06	.012	.031	.014	.04	.06	.51	.81	8.93E-03
25 percentile	1.25	12.4	4.36	.11	.020	.056	.022	.15	.10	.84	1.8	1.50E-02
50 percentile	14.20	16.7	4.66	.26	.043	.110	.036	.27	.15	1.27	1.75	2.19E-02
75 percentile	38.00	25.0	4.82	.49	.072	.169	.067	.41	.28	2.31	2.73	4.32E-02
90 percentile	50.58	36.1	5.05	.77	.118	.244	.092	.69	.39	2.80	3.97	5.89E-02
Maximum value	105.40	66.9	5.83	1.00	.198	1.081	.146	1.27	.54	4.37	7.5	1.23E-01
Volume-weighted mean	NA	14.8	4.67	.21	.036	.111	.038	.28	.18	1.07	1.63	2.15E-02
Arithmetic mean	21.55	20.1	4.66	.32	.053	.139	.047	.33	.19	1.57	2.16	3.01E-02
No. of samples	53	37	37	37	37	37	37	37	37	37	37	37
Total load, g/m2	NA	NA	NA	0.214	0.037	0.116	0.039	0.295	0.185	1.115	1.704	2.2E-02
Maximum interval load, g/m2	NA	NA	NA	.030	.006	.025	.007	.058	.031	0.118	.208	2.2E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.39	0.28	-.52	-.53	-.28	-.33	-.16	-.20	-.51	-.36	-0.28
P-level		.001	.014	.000	.000	.014	.005	.173	.091	.000	.002	.014



Percentiles of volume-weighted mean concentrations for site MO05, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site MO05. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site MO05.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

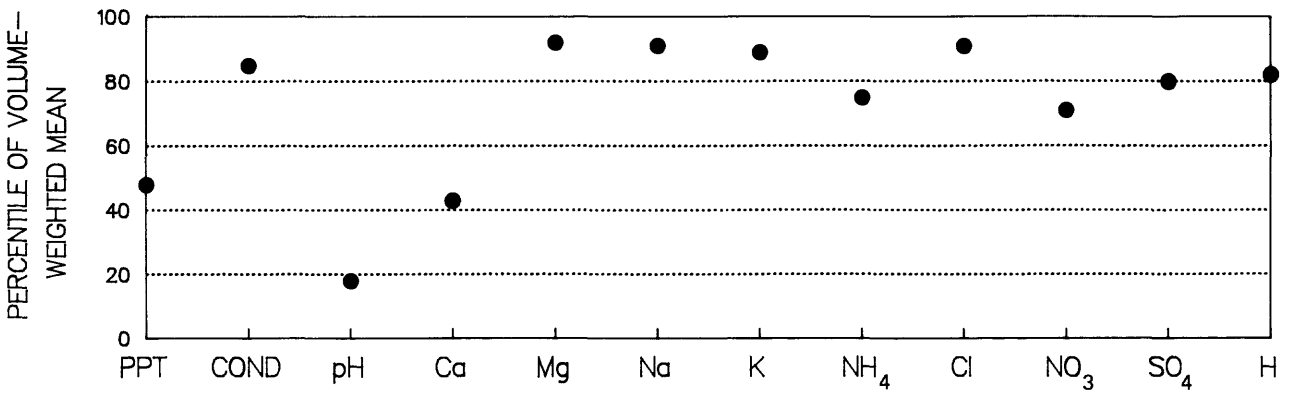
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Lewiston, North Carolina — Latitude: 36°07'40" Longitude: 77°10'30"
CAL number: NC03 — Map ID number: 55
ADS number: 049a00
Station altitude above mean sea level, in meters: 26
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 53 (371)
-- When ppt occurred: 47 (329)
-- When ppt did not occur: 6 (42)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 33 (232)

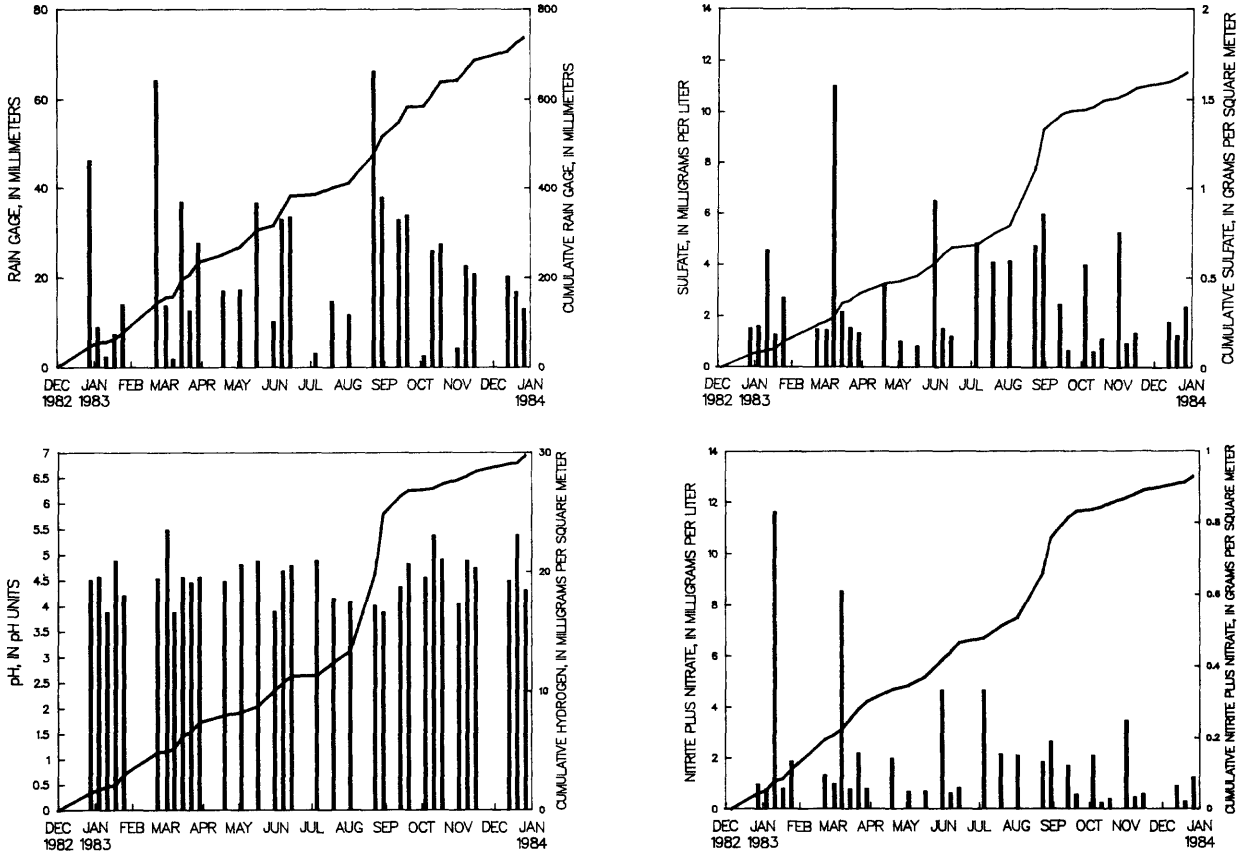
Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 73.9
Percent of total measured ppt with chemical samples: 67.2
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 98.5

Total measured ppt, in mm: 1097.5

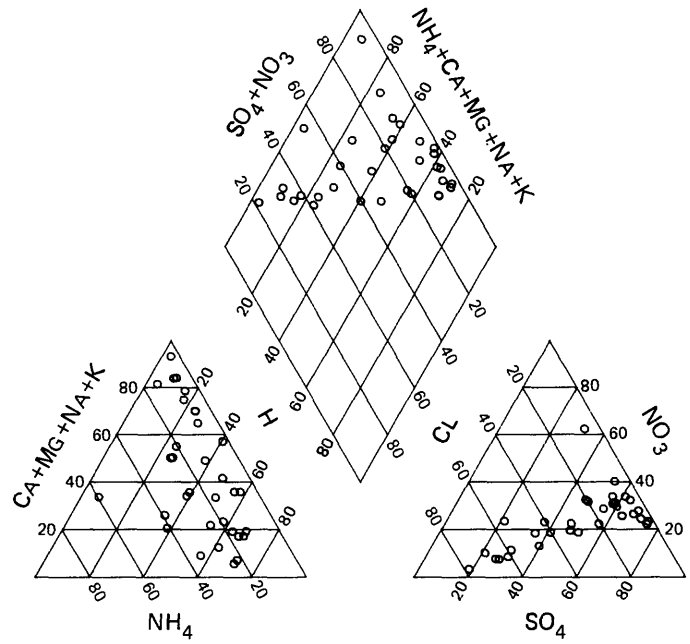
Statistical messures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	7.7	3.87	0.03	0.009	0.019	0.010	0.03	0.03	0.23	0.61	3.31E-03
10 percentile	.00	9.9	3.88	.05	.018	.087	.018	.07	.15	.41	.86	7.60E-03
25 percentile	2.80	15.6	4.17	.08	.036	.123	.029	.11	.24	.67	1.26	1.43E-02
50 percentile	14.70	24.0	4.55	.12	.073	.335	.048	.23	.47	.97	1.59	2.82E-02
75 percentile	33.25	34.5	4.84	.27	.157	.854	.090	.51	1.39	2.12	4.12	6.78E-02
90 percentile	52.62	64.2	5.18	.64	.245	1.742	.120	.91	3.01	4.65	5.69	1.31E-01
Maximum value	67.30	95.1	5.48	1.20	.259	2.080	.186	2.16	3.89	11.62	11.01	1.35E-01
Volume-weighted mean	NA	24.7	4.39	.13	.071	.471	.043	.31	.82	1.26	2.24	4.04E-02
Arithmetic mesn	20.71	29.8	4.54	.23	.099	.573	.060	.40	.98	1.97	2.73	4.44E-02
No. of samples	53	33	33	33	33	33	33	33	33	33	33	33
Total load, g/m2	NA	NA	NA	0.092	0.053	0.347	0.031	0.229	0.606	0.928	1.651	3.0E-02
Maximum interval losd, g/m2	NA	NA	NA	.007	.010	.076	.003	.040	.117	.121	0.315	6.5E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	N_4	Cl	NO_3	SO_4	H
Kendall tau		-0.33	0.13	-.62	-.47	-.27	-.49	-.20	-.24	-.33	-.32	-0.13
P-level		.006	.278	.000	.000	.030	.000	.107	.049	.007	.010	0.278



Percentiles of volume-weighted mean concentrations for site NC03, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site NC03.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site NC03.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Coweeta, North Carolina — Latitude: 35°03'38" Longitude: 83°25'50"

CAL number: NC25 — Map ID number: 56

ADS number: 050a00

Station altitude above mean sea level, in meters: 686

Number of sampling intervals (days in parenthesis):

-- With ppt measurementa:	51	(371)
-- When ppt occurred:	49	(357)
-- When ppt did not occur:	2	(14)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	36	(259)

Station summary period: 12/28/1982 to 01/03/1984

Length of summary period: 51 sampling intervals (371 days)

Percent summary period with ppt measurements: 100.0

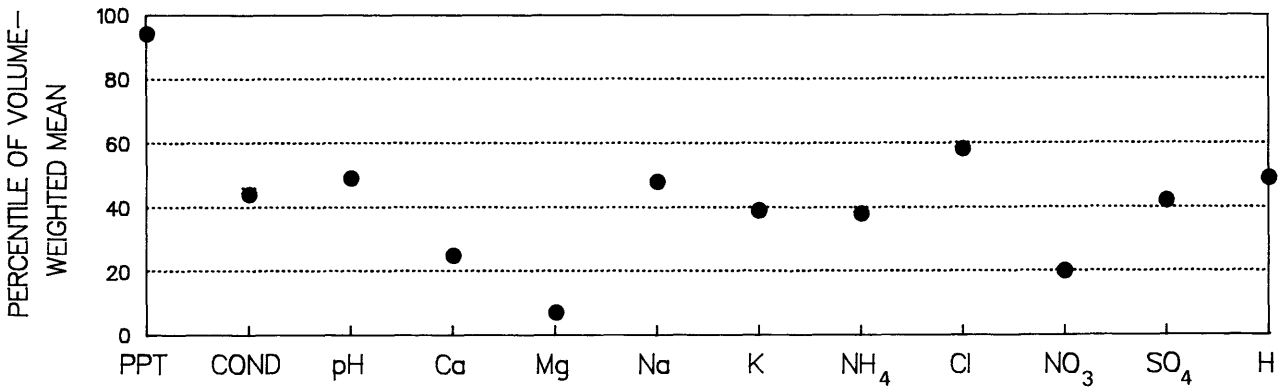
Percent summary period with chemical samples or no ppt: 73.6

Percent of total measured ppt with chemical samples: 86.5

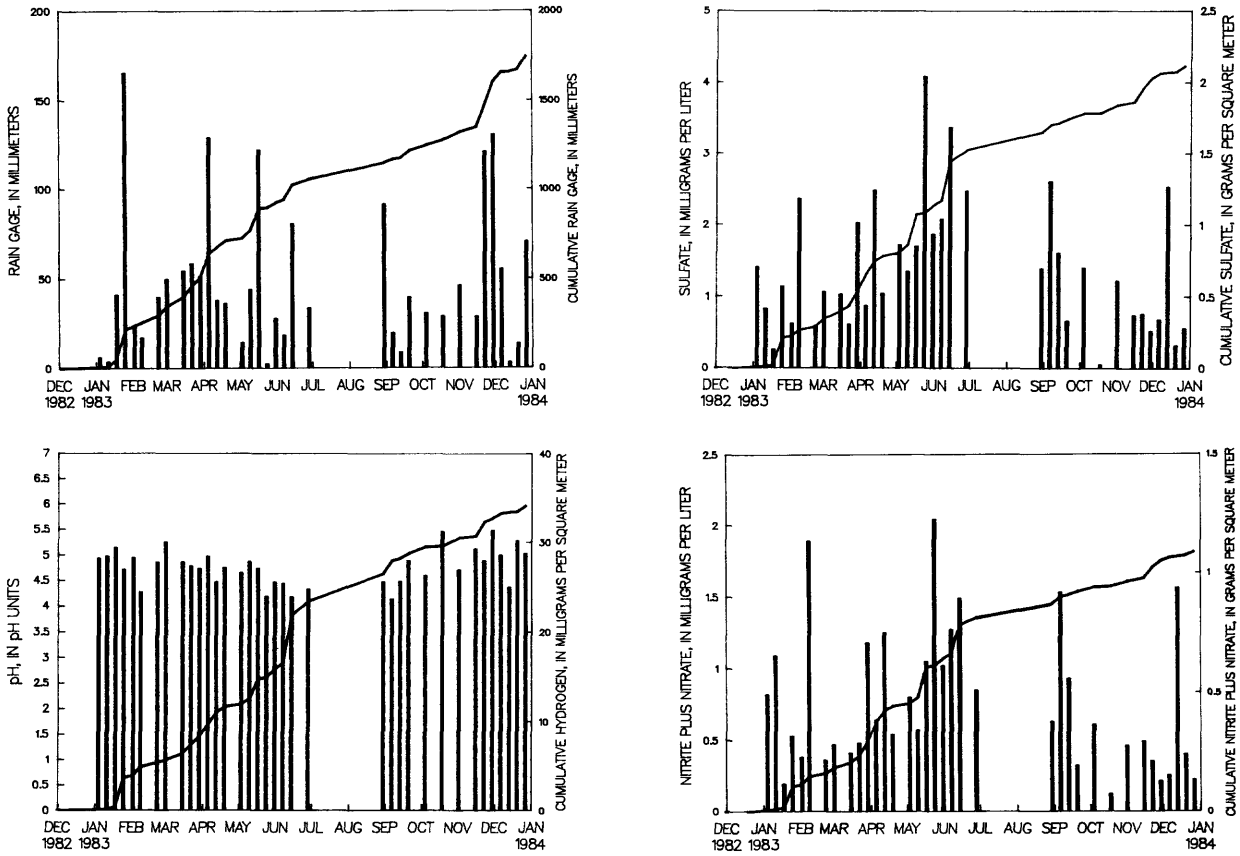
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 99.5

Total measured ppt, in mm: 2015.8

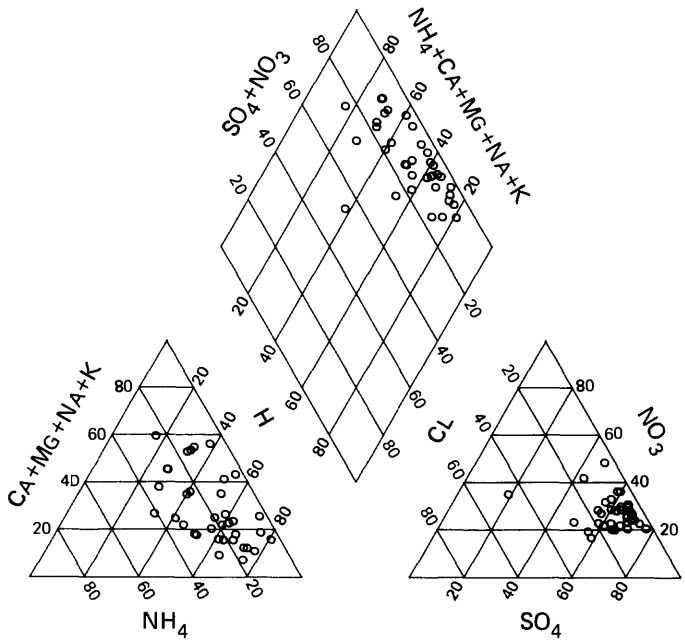
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.8	4.14	0.00	0.004	0.017	0.002	0.01	0.03	0.12	0.05	3.31E-03
10 percentile	.70	4.1	4.25	.02	.006	.020	.007	.01	.05	.22	.46	5.51E-03
25 percentile	8.60	7.2	4.47	.03	.011	.032	.010	.06	.08	.39	.66	1.07E-02
50 percentile	28.70	11.1	4.76	.07	.017	.059	.018	.14	.12	.59	1.18	1.72E-02
75 percentile	51.30	19.3	4.97	.14	.031	.100	.044	.23	.18	1.08	1.99	3.39E-02
90 percentile	116.22	28.7	5.26	.23	.064	.224	.064	.34	.35	1.54	2.55	5.70E-02
Maximum value	165.40	36.8	5.48	.41	.083	.415	.170	.67	.71	2.04	4.08	7.24E-02
Volume-weighted mean	NA	12.2	4.71	.08	.020	.094	.027	.17	.18	.62	1.21	1.96E-02
Arithmetic mean	39.53	14.1	4.76	.10	.025	.086	.031	.16	.16	.76	1.39	2.33E-02
No. of samples	51	36	36	36	36	36	36	36	36	36	36	36
Total load, g/m2	NA	NA	NA	0.141	0.034	0.163	0.047	0.288	0.314	1.088	2.115	3.4E-02
Maximum interval load, g/m2	NA	NA	NA	.023	.007	.051	.006	.039	.087	0.128	0.271	5.3E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.21	0.18	-.31	-.34	-.02	-.08	-.02	-.02	-.30	-.21	-0.18
P-level		.077	.127	.008	.004	.849	.513	.848	.848	.010	.070	.127



Percentiles of volume-weighted mean concentrations for site NC25, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site NC25.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site NC25.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

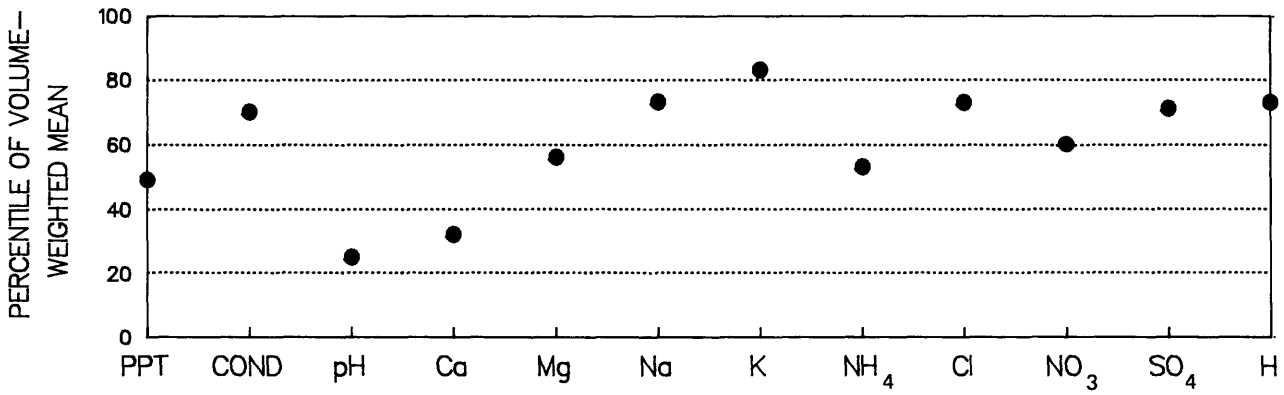
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Piedmont Station, North Carolina — Latitude: 35°41'48" Longitude: 80°37'22"
CAL number: NC34 — Map ID number: 57
ADS number: 051a00
Station altitude above mean sea level, in meters: 221
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 53 (371)
-- When ppt occurred: 49 (343)
-- When ppt did not occur: 4 (28)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 37 (259)

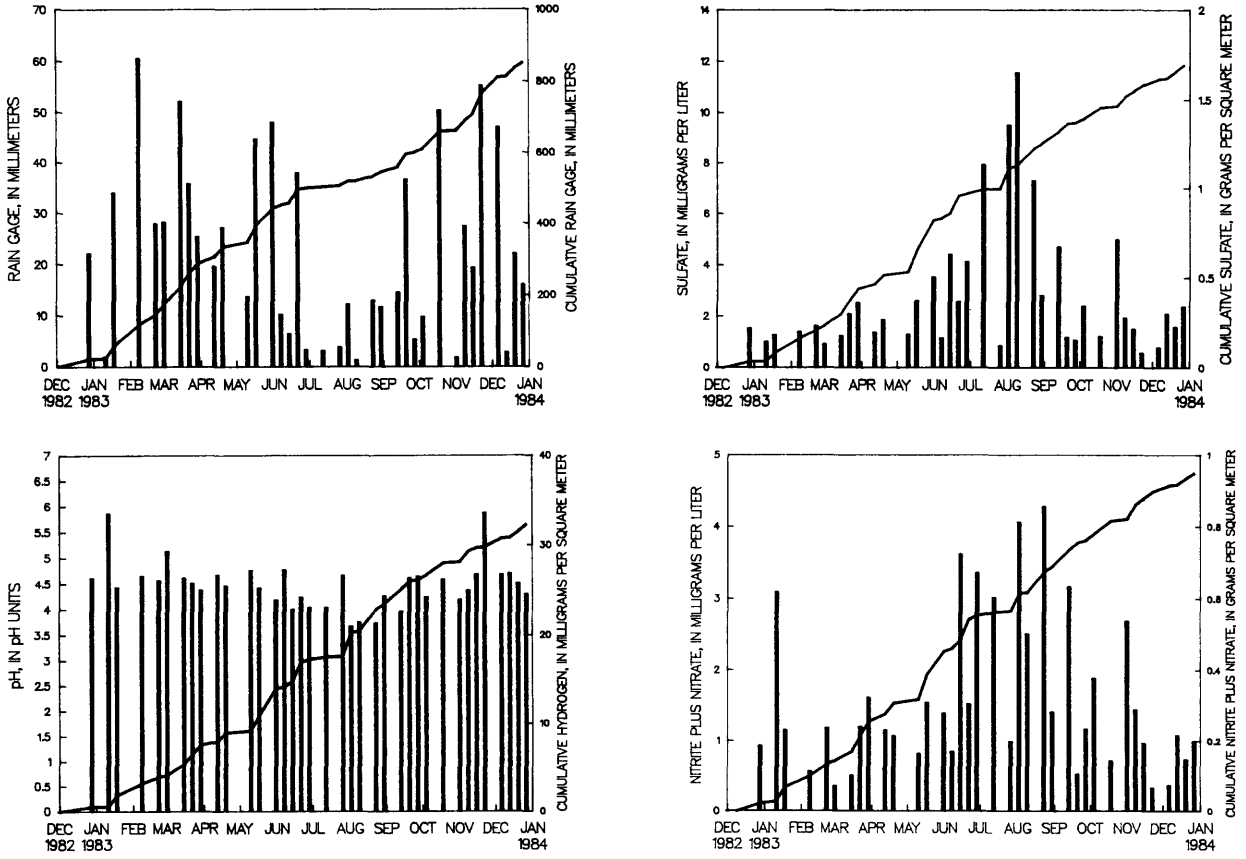
Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 77.4
Percent of total measured ppt with chemical samples: 76.3
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 96.3

Total measured ppt, in mm: 1116.1

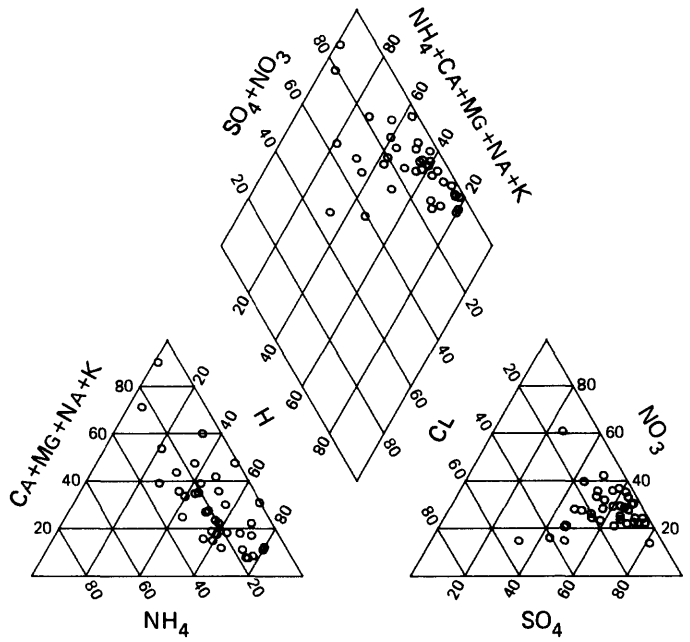
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	4.9	3.67	0.01	0.008	0.023	0.004	0.01	0.04	0.33	0.57	1.35E-03
10 percentile	.04	11.6	3.92	.04	.012	.041	.010	.05	.09	.48	.90	1.51E-02
25 percentile	3.20	13.3	4.21	.07	.024	.069	.023	.11	.16	.84	1.23	2.16E-02
50 percentile	16.00	19.9	4.51	.13	.040	.169	.040	.24	.26	1.17	1.86	3.09E-02
75 percentile	34.90	33.7	4.66	.19	.068	.289	.060	.44	.48	2.20	3.17	6.11E-02
90 percentile	51.38	63.7	4.84	.41	.101	.633	.103	.71	.99	3.41	7.42	1.23E-01
Maximum vslue	67.60	98.4	5.87	.56	.103	1.420	.176	1.39	1.46	4.28	11.55	2.14E-01
Volume-weighted mean	NA	21.6	4.42	.10	.043	.234	.041	.23	.42	1.12	1.99	3.79E-02
Arithmetic mean	21.06	28.7	4.48	.16	.048	.247	.049	.31	.37	1.58	2.78	5.13E-02
No. of samples	53	37	37	37	37	37	37	37	37	37	37	37
Total load, g/m2	NA	NA	NA	0.089	0.036	0.199	0.035	0.197	0.355	0.950	1.695	3.2E-02
Maximum interval load, g/m2	NA	NA	NA	.008	.005	.041	.006	.024	.073	.069	0.169	3.1E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.29	0.18	-.51	-.28	-.12	-.28	-.23	-.08	-.37	-.25	-0.18
P-level		.013	.126	.000	.016	.283	.016	.045	.504	.001	.030	.126



Percentiles of volume-weighted mean concentrations for site NC34, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site NC34.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site NC34.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

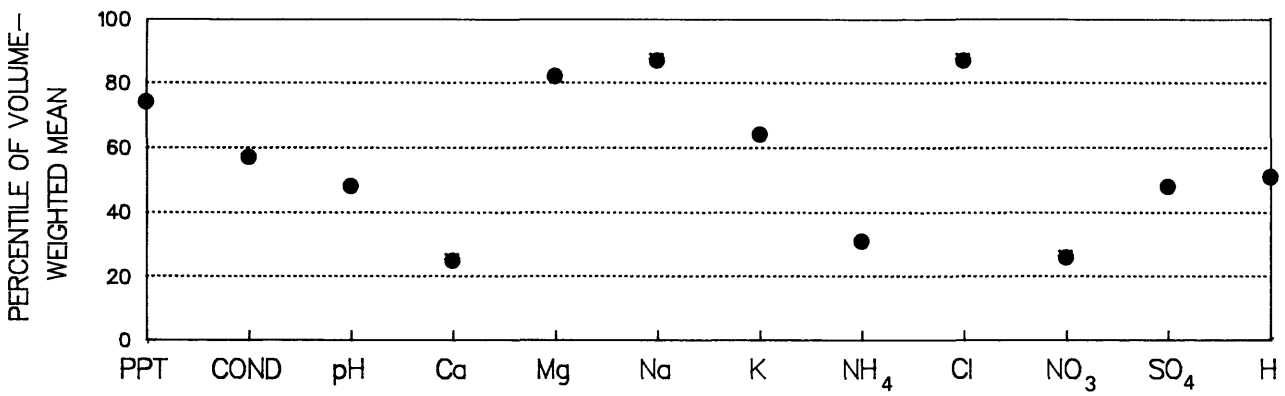
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Clinton Station, North Carolina — Letitude: 35°01'26" Longitude: 78°16'45"
CAL number: NC35 — Map ID number: 58
ADS number: 052a00 — Station summary period: 12/28/1982 to 01/03/1984
Station eltitude above mean sea level, in meters: 47 — Length of summary period: 53 sampling intervals (371 days)

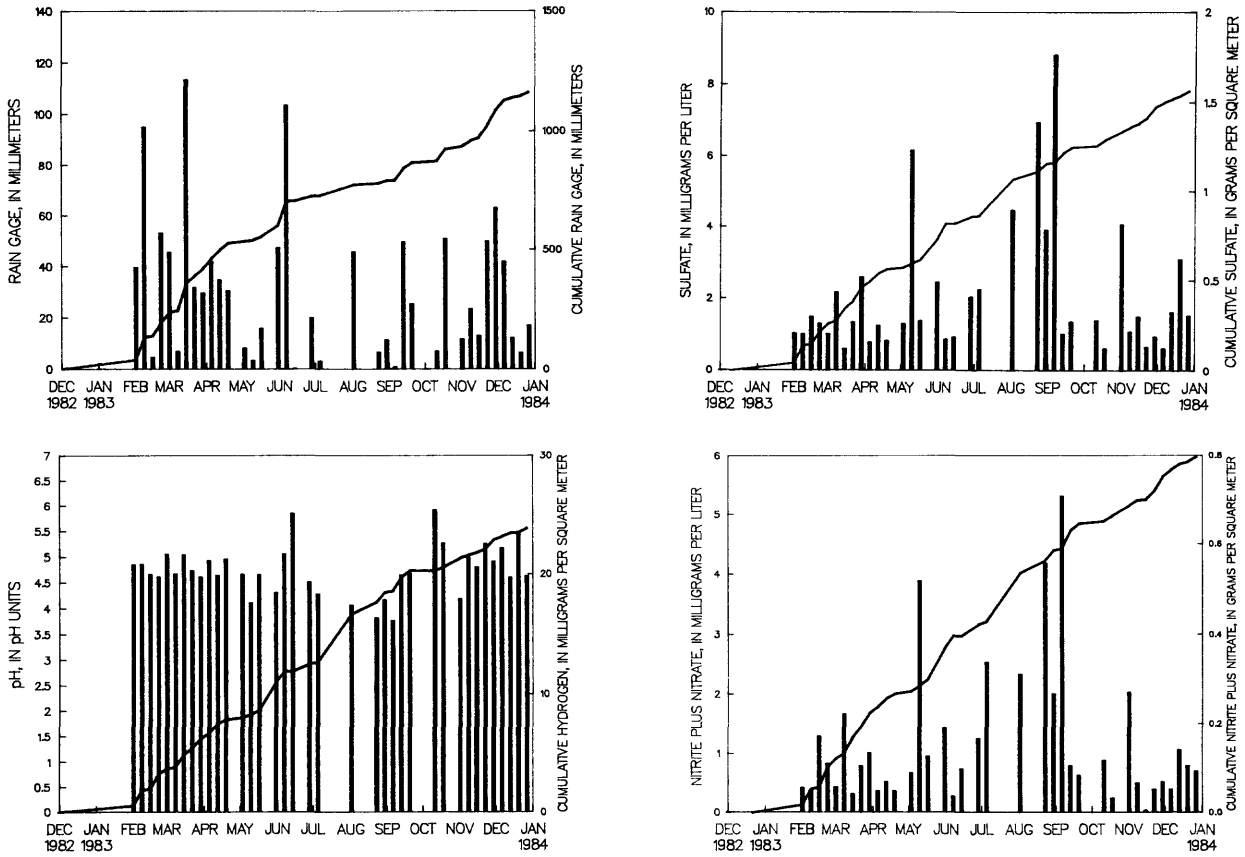
Number of sampling intervals (days in parenthesis):			
-- With ppt measurements:	52	(364)	
-- When ppt occurred:	48	(336)	
-- When ppt did not occur:	4	(28)	
-- When sample volume was substituted for missing rain gage:	0	(0)	
-- With chemical samples:	37	(259)	

Percent summary period with ppt measurements:	98.1
Percent summary period with chemical samples or no ppt:	77.4
Percent of total measured ppt with chemical samples:	88.4
Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	97.6
Total measured ppt, in mm: 1316.2	

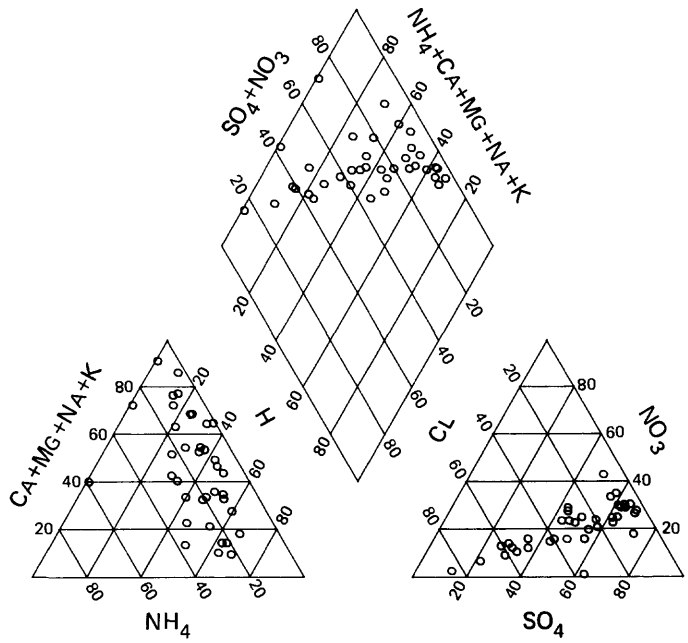
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	6.3	3.76	0.01	0.004	0.022	0.008	0.01	0.08	0.03	0.60	1.20E-03
10 percentile	.00	8.5	4.09	.03	.024	.082	.015	.04	.15	.30	.64	5.04E-03
25 percentile	4.77	10.3	4.55	.05	.028	.147	.024	.09	.25	.40	.97	9.80E-03
50 percentile	15.90	15.8	4.67	.12	.054	.257	.037	.12	.53	.79	1.35	2.14E-02
75 percentile	43.62	28.9	5.01	.22	.084	.515	.061	.41	.90	1.36	2.34	2.80E-02
90 percentile	52.56	50.7	5.31	.40	.151	.850	.162	.73	1.52	2.80	4.80	8.10E-02
Maximum value	113.30	82.3	5.92	.83	.717	5.890	.344	1.79	14.60	5.30	8.81	1.74E-01
Volume-weighted mean	NA	15.0	4.69	.08	.057	.399	.034	.15	.75	.69	1.35	2.05E-02
Arithmetic mean	25.31	22.5	4.74	.18	.088	.563	.062	.29	1.11	1.16	2.06	3.17E-02
No. of samples	52	37	37	37	37	37	37	37	37	37	37	37
Total load, g/m2	NA	NA	NA	0.094	0.067	0.464	0.040	0.176	0.873	0.797	1.564	2.4E-02
Maximum interval load, g/m2	NA	NA	NA	.009	.013	.101	.005	.023	.186	.107	0.204	4.0E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.50	0.25	-.72	-.44	-.17	-.52	-.41	-.13	-.47	-.50	-0.25
P-level		.000	.031	.000	.000	.129	.000	.000	.255	.000	.000	.031



Percentiles of volume-weighted mean concentrations for site NC35, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site NC35.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site NC35.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

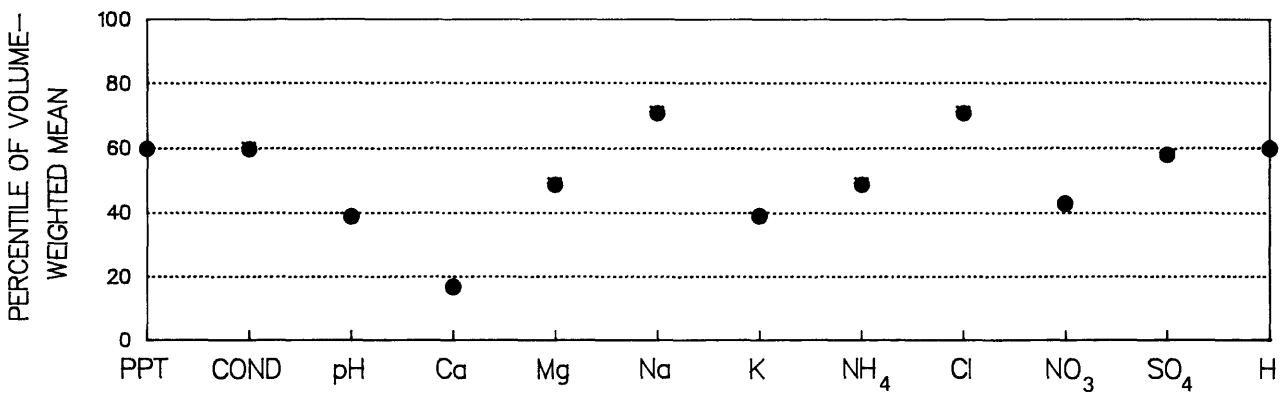
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; µs = microsiemens; cond = specific conductance]

STATION: Finley (A), North Carolina — Latitude: 35°43'43" Longitude: 78°40'52"
(composite data from sites 053a02 and 053a03)
CAL number: NC41 — Map ID number: 60
ADS number: 053a
Station altitude above mean sea level, in meters: 119
Number of sampling intervals (days in parenthesis):

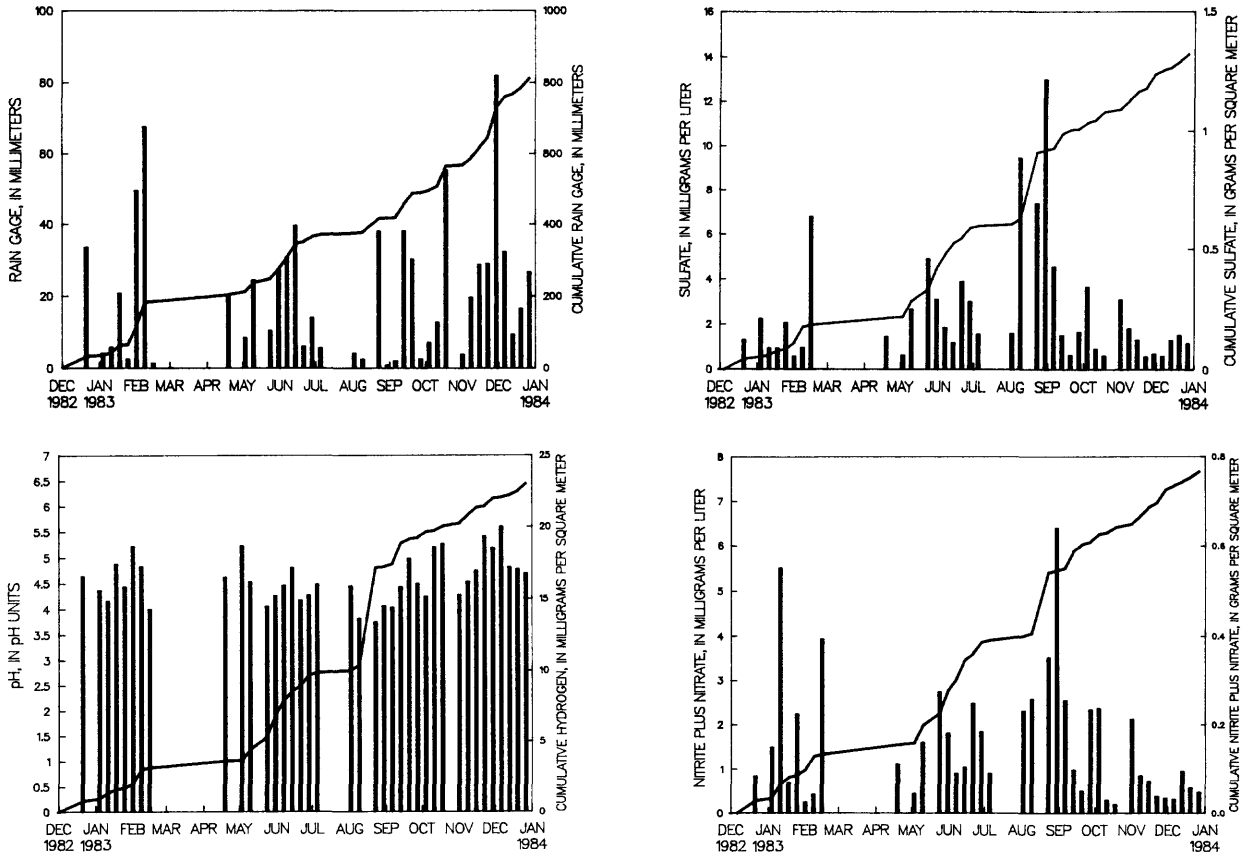
-- With ppt measurements:	53	(378)
-- When ppt occurred:	50	(357)
-- When ppt did not occur:	3	(21)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	38	(273)

Station summary period: 12/21/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (378 days)
Percent summary period with ppt measurements: 101.9
Percent summary period with chemical samples or no ppt: 79.2
Percent of total measured ppt with chemical samples: 66.1
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 93.1
Total measured ppt, in mm: 1230.4

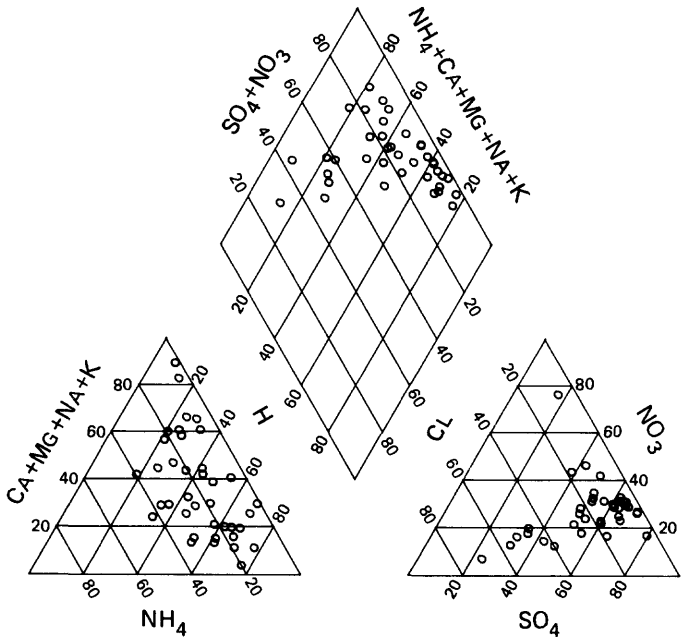
Statistical measures	Measured ppt, mm	Lab specific conductance, µS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	4.9	3.75	0.02	0.011	0.016	0.003	0.01	0.04	0.20	0.57	2.51E-03
10 percentile	.50	5.7	4.03	.03	.016	.050	.013	.06	.11	.31	0.60	5.85E-03
25 percentile	4.10	10.6	4.25	.06	.027	.083	.019	.10	.17	.50	0.94	1.44E-02
50 percentile	18.30	19.8	4.51	.10	.039	.172	.030	.16	.27	1.01	1.54	3.09E-02
75 percentile	31.50	35.2	4.84	.20	.069	.307	.060	.47	.46	2.35	3.09	5.56E-02
90 percentile	53.04	70.5	5.23	.34	.238	1.193	.108	.69	2.19	3.56	6.84	9.40E-02
Maximum value	124.00	81.7	5.60	1.21	.411	1.980	.440	1.27	3.61	6.40	12.96	1.78E-01
Volume-weighted mean	NA	17.2	4.56	.07	.038	.213	.027	.21	.38	.94	1.63	2.83E-02
Arithmetic mean	23.22	26.0	4.58	.17	.073	.336	.053	.30	.60	1.61	2.55	4.15E-02
No. of samples	53	38	38	38	38	38	38	38	38	38	38	38
Total load, g/m2	NA	NA	NA	0.060	0.031	0.173	0.022	0.173	0.312	0.767	1.325	2.3E-02
Maximum interval load, g/m2	NA	NA	NA	.004	.004	.031	.002	.032	.054	.134	0.282	6.8E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.48	0.43	-.72	-.60	-.24	-.48	-.28	-.23	-.50	-.44	-0.43
P-level		.000	.000	.000	.000	.036	.000	.015	.047	.000	.000	.000



Percentiles of volume-weighted mean concentrations for site NC41, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site NC41. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site NC41.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

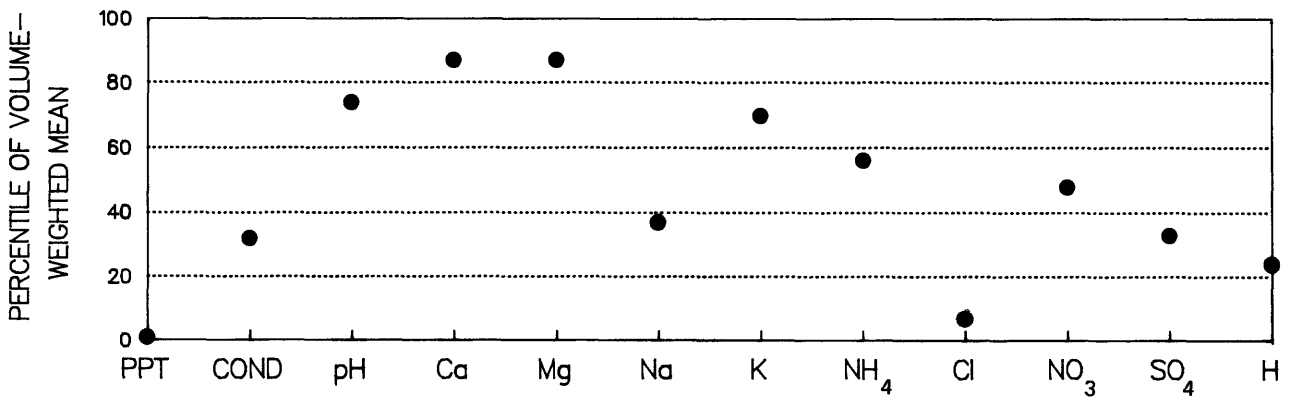
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Teddy Roosevelt NP, North Dakota — Latitude: 47°36'09" Longitude: 103°15'54"
(composite data from 062a00 and 062a01)
CAL number: ND07 — Map ID number: 61
ADS number: 062a
Station altitude above mean sea level, in meters: 618
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 50 (371)
-- When ppt occurred: 47 (350)
-- When ppt did not occur: 3 (21)
-- When sample volume was substituted for missing rain gage: 5 (34)
-- With chemical samples: 30 (225)

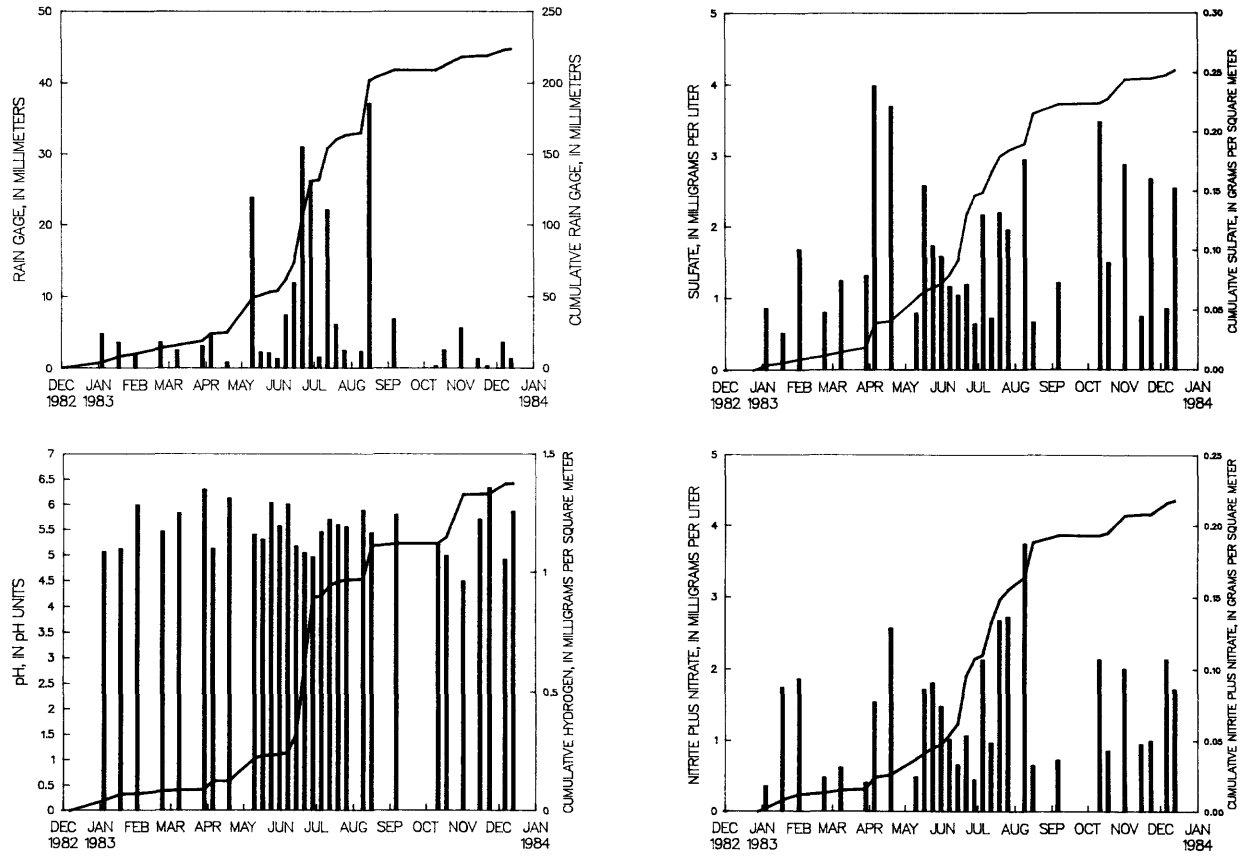
Station summary period: 12/21/1982 to 01/03/1984
Length of summary period: 51 sampling intervals (378 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 66.3
Percent of total measured ppt with chemical samples: 85.3
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 95.6

Total measured ppt, in mm: 263.3

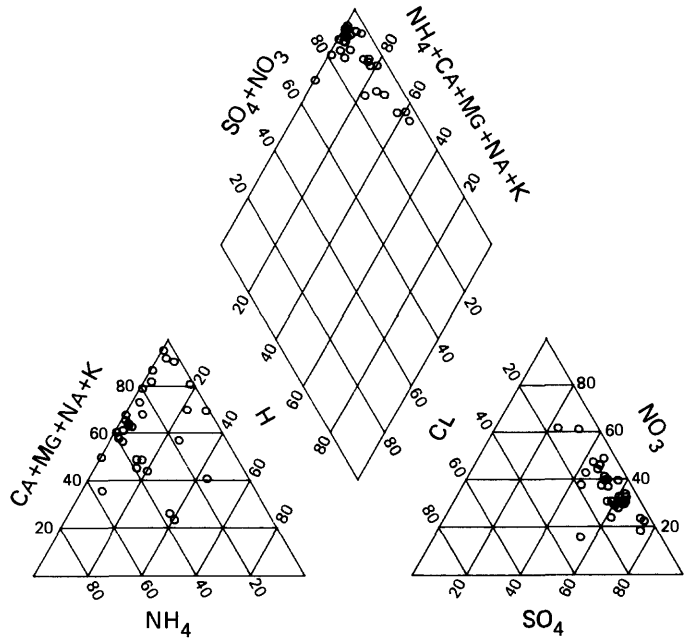
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	5.5	4.49	0.05	0.016	0.023	0.007	0.01	0.03	0.36	0.51	4.68E-04
10 percentile	.00	5.9	4.96	.13	.027	.031	.010	.04	.05	.45	.67	7.76E-04
25 percentile	.30	7.2	5.12	.24	.045	.069	.023	.12	.08	.66	.84	1.36E-03
50 percentile	1.75	10.9	5.50	.42	.089	.147	.036	.25	.18	1.28	1.40	3.14E-03
75 percentile	5.00	16.0	5.86	.73	.166	.243	.079	.56	.30	2.04	2.55	7.59E-03
90 percentile	21.72	22.8	6.11	1.15	.218	.465	.187	1.01	.51	2.67	3.41	1.09E-02
Maximum value	37.10	25.6	6.33	1.60	.401	.650	.253	1.54	1.08	3.74	3.98	3.24E-02
Volume-weighted mean	NA	9.3	5.21	.31	.061	.084	.036	.24	.10	.97	1.12	6.14E-03
Arithmetic mean	5.27	12.5	5.51	.53	.114	.193	.065	.37	.23	1.42	1.71	5.14E-03
No. of samples	50	30	30	30	30	30	30	30	30	30	30	30
Total load, g/m2	NA	NA	NA	0.069	0.014	0.019	0.008	0.055	0.023	0.218	0.252	1.4E-03
Maximum interval load, g/m2	NA	NA	NA	.008	.001	.002	.001	.009	.003	.033	.037	2.9E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.34	-0.30	-.39	-.47	-.65	-.39	-.13	-.60	-.30	-.45	0.30
P-level		.009	.019	.003	.000	.000	.003	.307	.000	.021	.001	.019



Percentiles of volume-weighted mean concentrations for site ND07, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site ND07. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site ND07.

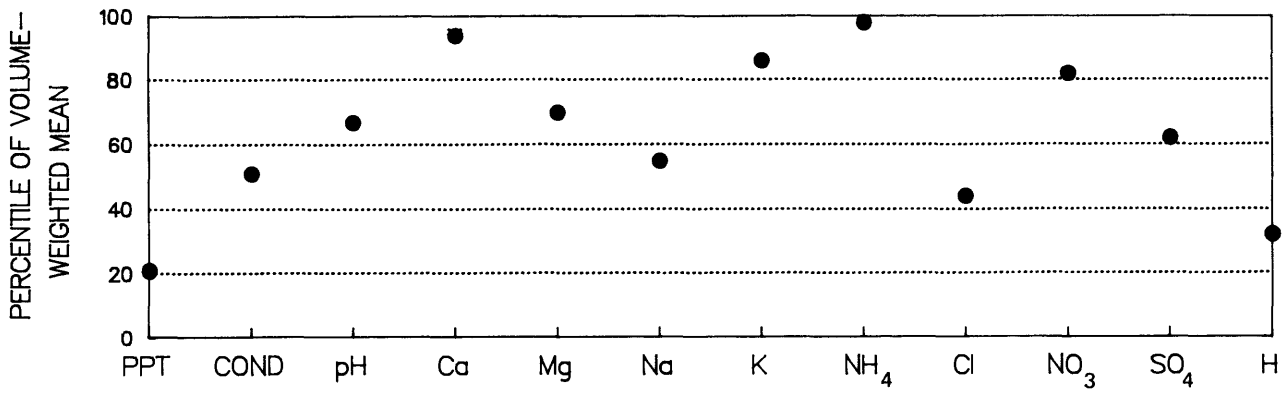
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

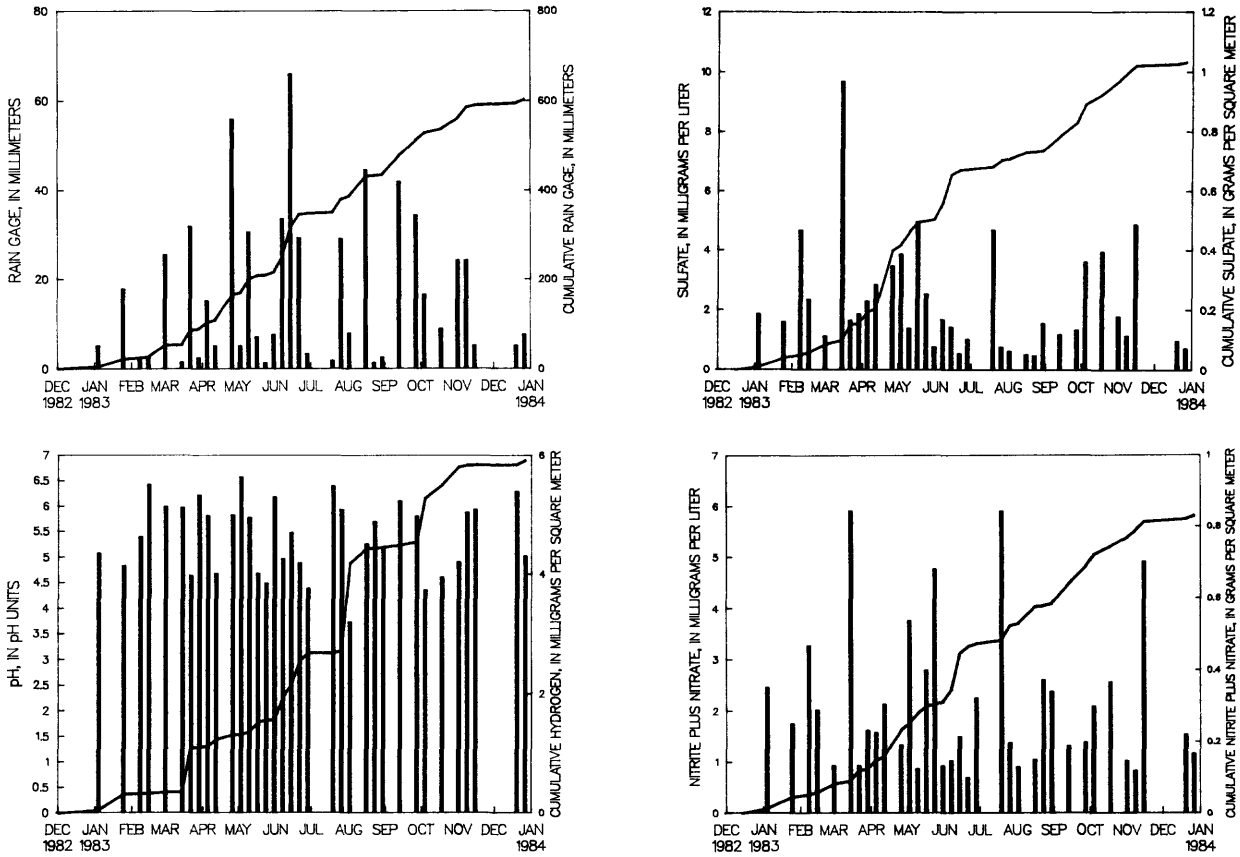
STATION: Mead, Nebraska (composite data from sites 038a00 and 038a01) Latitude: 41°09'11" Longitude: 96°29'34"
CAL number: NE15 Map ID number: 64
ADS number: 038a
Station altitude above mean sea level, in meters: 352
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 53 (370)
-- When ppt occurred: 46 (322)
-- When ppt did not occur: 7 (48)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 35 (245)

Station summary period: 12/29/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (370 days)
Percent summary period with ppt measurements: 99.7
Percent summary period with chemical samples or no ppt: 79.0
Percent of total measured ppt with valid samples: 91.3
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 98.7
Total measured ppt, in mm: 660.9

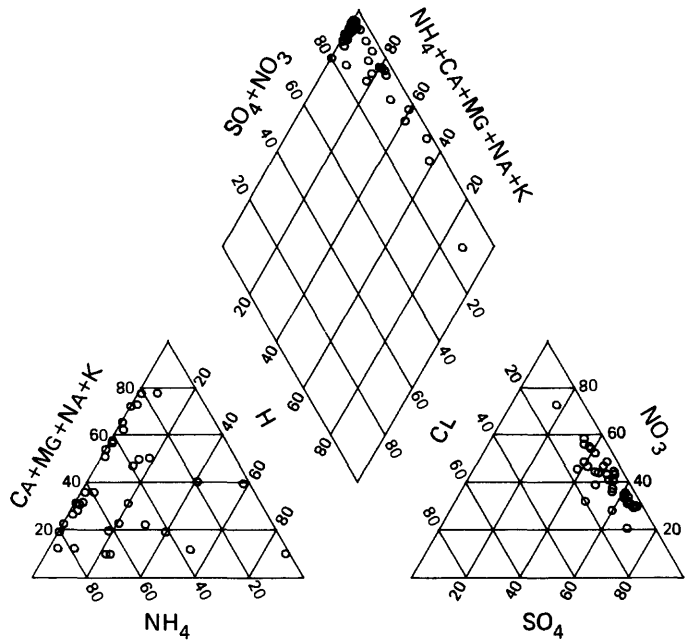
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	6.8	3.73	0.05	0.008	0.011	0.007	0.01	0.04	0.69	0.47	2.69E-04
10 percentile	0.00	7.9	4.44	.07	.011	.025	.013	.17	.07	.88	.59	4.71E-04
25 percentile	0.30	9.6	4.82	.21	.027	.043	.024	.42	.09	1.02	1.02	1.07E-03
50 percentile	5.10	14.9	5.47	.42	.046	.097	.050	.79	.13	1.58	1.65	3.39E-03
75 percentile	24.75	28.9	5.97	.75	.097	.217	.117	1.29	.28	2.56	3.46	1.51E-02
90 percentile	33.98	43.5	6.33	1.87	.191	.365	.179	2.08	.47	4.82	4.75	3.65E-02
Maximum value	66.00	88.8	6.57	3.18	.345	.508	.372	5.23	.77	5.91	9.67	1.86E-01
Volume-weighted mean	NA	14.5	5.01	.39	.047	.102	.042	.65	.15	1.38	1.71	9.80E-03
Arithmetic mean	12.47	22.4	5.41	.63	.073	.140	.079	1.00	.21	2.10	2.27	1.44E-02
No. of samples	53	35	35	35	35	35	35	35	35	35	35	35
Total load, g/m2	NA	NA	NA	0.238	0.028	0.061	0.025	0.394	0.090	0.830	1.032	5.9E-03
Maximum interval load, g/m2	NA	NA	NA	.036	.007	.020	.003	.056	.021	.099	0.193	1.5E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.44	-0.06	-.34	-.39	-.43	-.45	-.42	-.46	-.49	-.25	0.06
P-level		.000	.588	.005	.001	.000	.000	.000	.000	.000	.035	.588



Percentiles of volume-weighted mean concentrations for site NE15, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site NE15. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site NE15.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Hubbard Brook, New Hampshire — Latitude: 43°56'35" Longitude: 71°42'12"

CAL number: NH02 — Map ID number: 65

ADS number: 039a00

Station altitude above mean sea level, in meters: 250

Number of sampling intervals (days in parenthesis):

-- With ppt measurements:	53	(371)
-- When ppt occurred:	52	(364)
-- When ppt did not occur:	1	(7)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	36	(252)

Station summary period: 12/28/1982 to 01/03/1984

Length of summary period: 53 sampling intervals (371 days)

Percent summary period with ppt measurements: 100.0

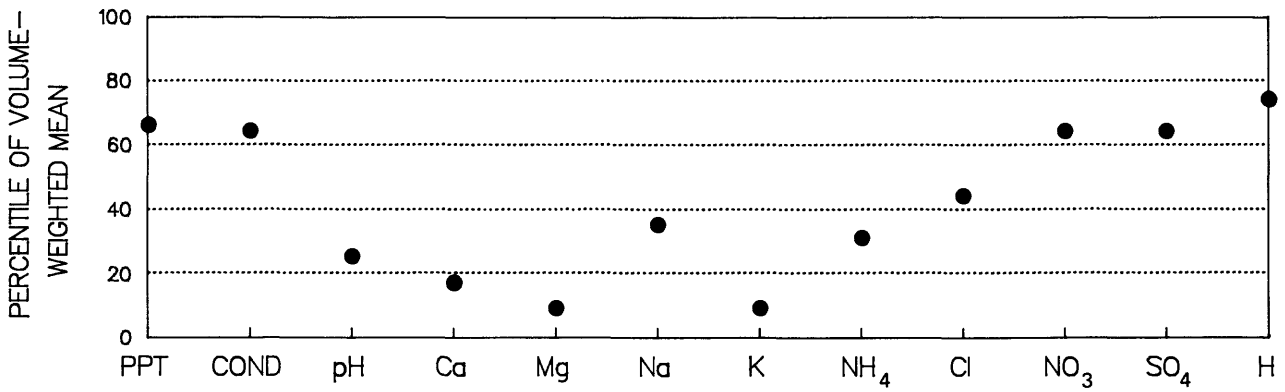
Percent summary period with chemical samples or no ppt: 69.8

Percent of total measured ppt with chemical samples: 65.5

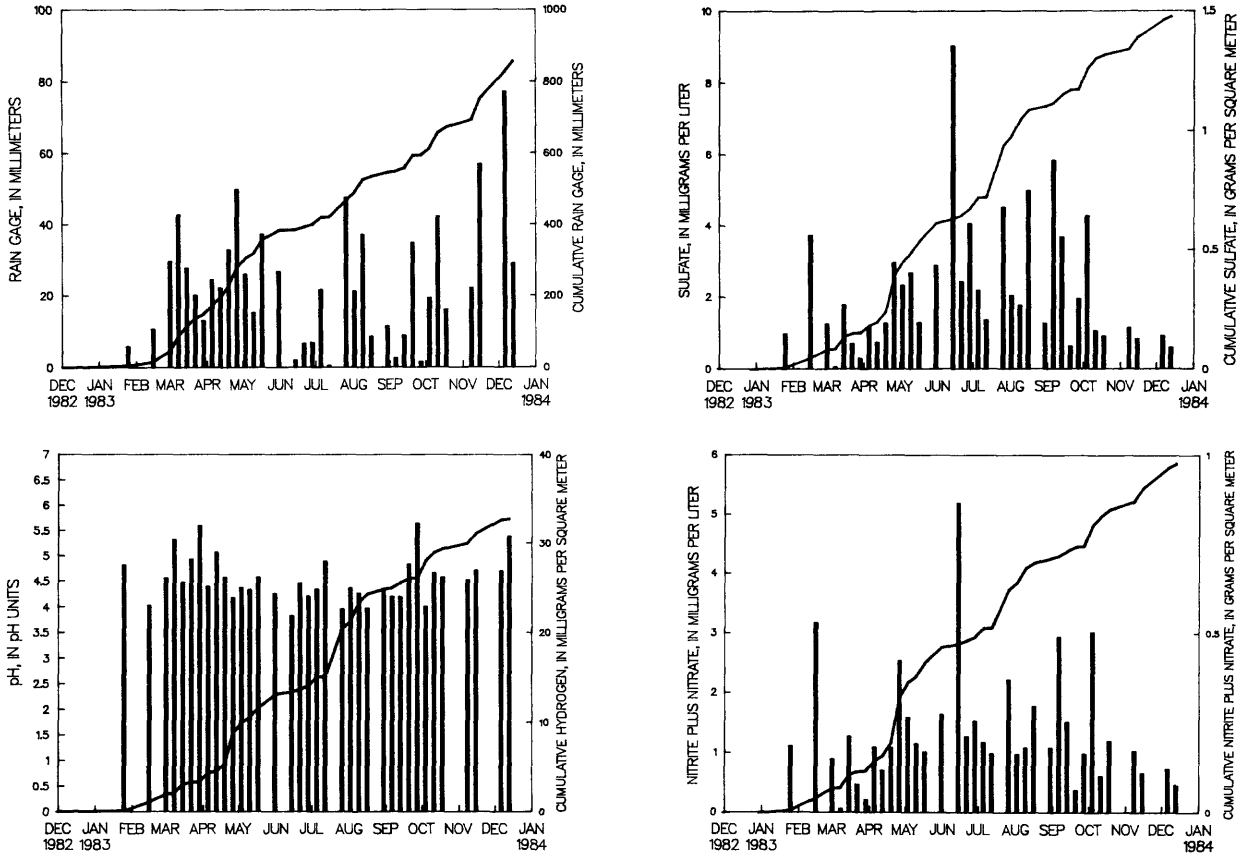
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 97.1

Total measured ppt, in mm: 1309.6

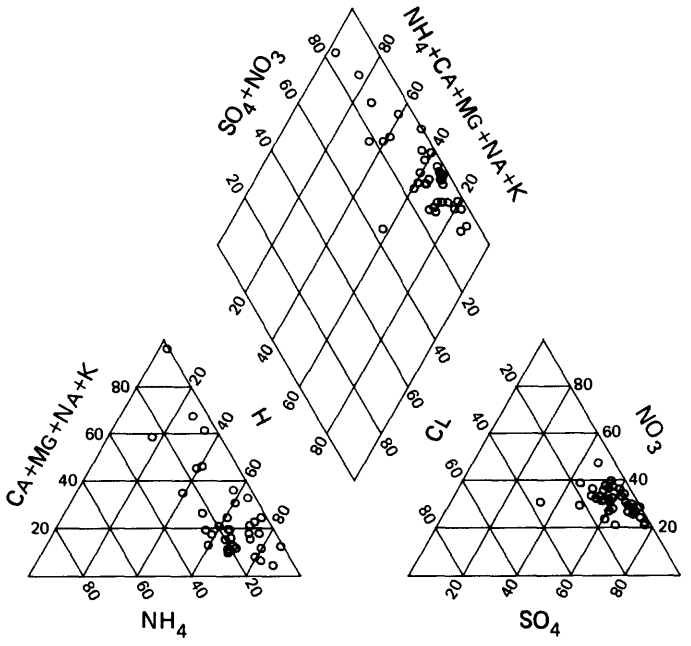
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.8	3.82	0.01	0.005	0.016	0.006	0.01	0.01	0.06	0.05	2.29E-03
10 percentile	1.50	6.0	3.99	.02	.010	.028	.007	.01	.06	.43	.62	4.60E-03
25 percentile	9.65	11.4	4.21	.04	.013	.047	.010	.04	.08	.77	.93	1.65E-02
50 percentile	22.10	18.0	4.46	.08	.021	.072	.018	.13	.13	1.08	1.56	3.47E-02
75 percentile	36.35	33.7	4.78	.15	.045	.124	.035	.29	.22	1.58	2.94	6.14E-02
90 percentile	54.58	49.7	5.34	.38	.109	.297	.072	.54	.36	2.96	4.65	1.02E-01
Maximum value	77.20	96.5	5.64	.76	.183	.440	.214	.85	.54	5.19	9.01	1.51E-01
Volume-weighted mean	NA	19.9	4.42	.07	.022	.083	.019	.15	.15	1.14	1.72	3.82E-02
Arithmetic mean	24.71	23.7	4.54	.13	.037	.107	.032	.21	.17	1.35	2.21	4.30E-02
No. of samples	53	36	36	36	36	36	36	36	36	36	36	36
Total load, g/m2	NA	NA	NA	0.05	0.019	0.071	0.016	0.130	0.125	0.977	1.477	3.3E-02
Maximum interval load, g/m2	NA	NA	NA	.008	.002	.008	.002	.025	.012	.126	.215	5.3E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.19	0.15	-.54	-.44	-.18	-.41	-.28	-.07	-.24	-.27	-0.15
P-level		.105	.210	.000	.000	.127	.001	.018	.566	.040	.021	.210



Percentiles of volume-weighted mean concentrations for site NH02, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site NH02. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site NH02.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

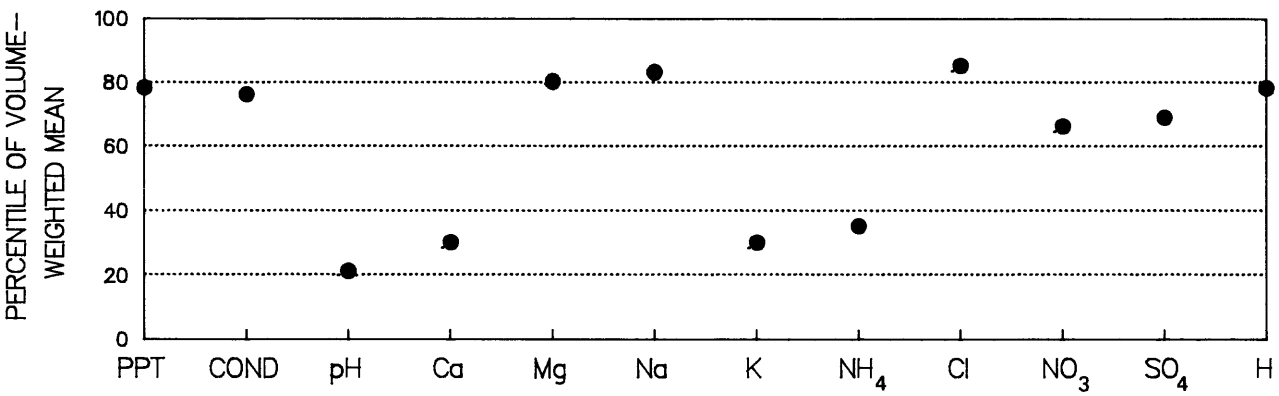
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Washington Crossing, New Jersey — Latitude: 40°18'54" Longitude: 74°51'17"
CAL number: NJ99 — Map ID number: 66
ADS number: 285a00
Station elevation above mean sea level, in meters: 72
Number of sampling intervals (days in parenthesis):

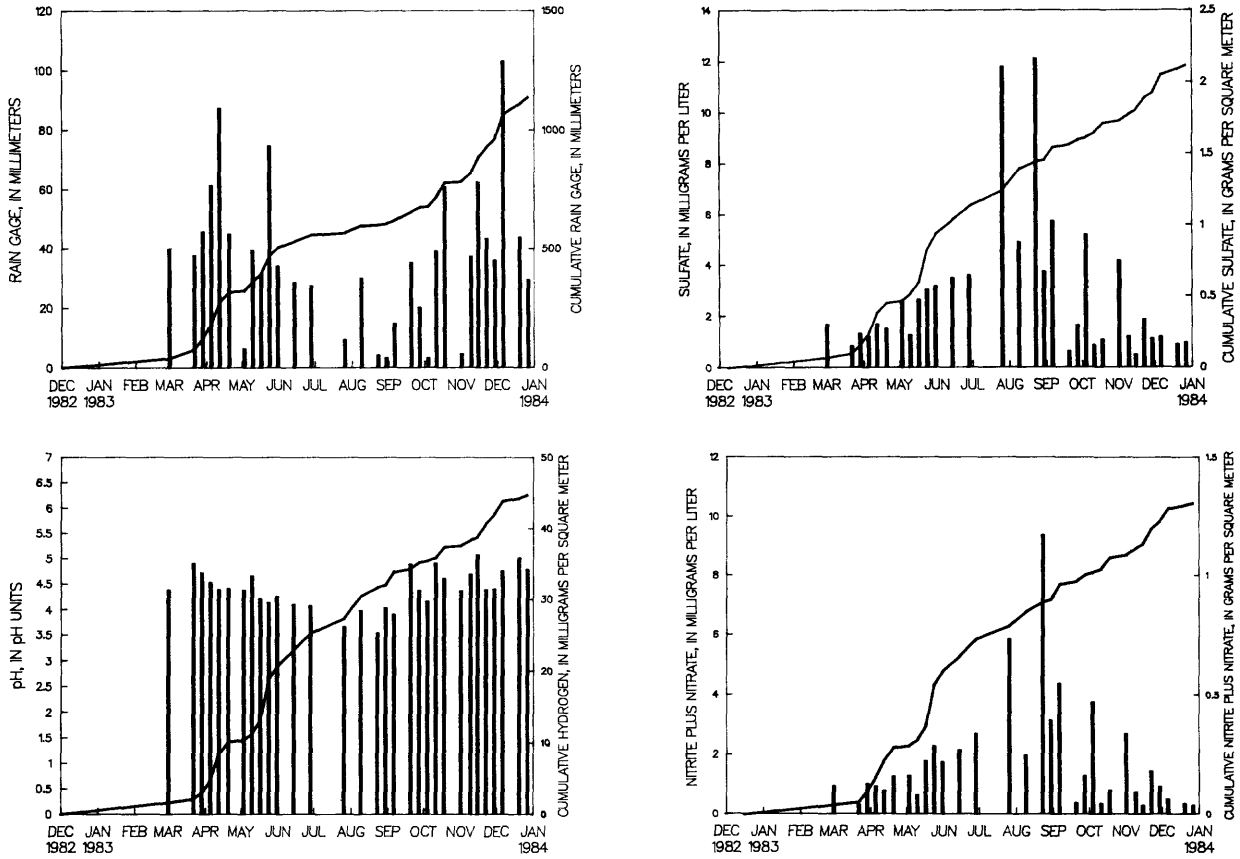
-- With ppt measurments:	53	(371)
-- When ppt occurred:	47	(330)
-- When ppt did not occur:	6	(41)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	31	(220)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurments: 100.0
Percent summary period with chemical samples or no ppt: 70.4
Percent of total measured ppt with chemical samples: 80.2
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 97.1
Total measured ppt, in mm: 1422.2

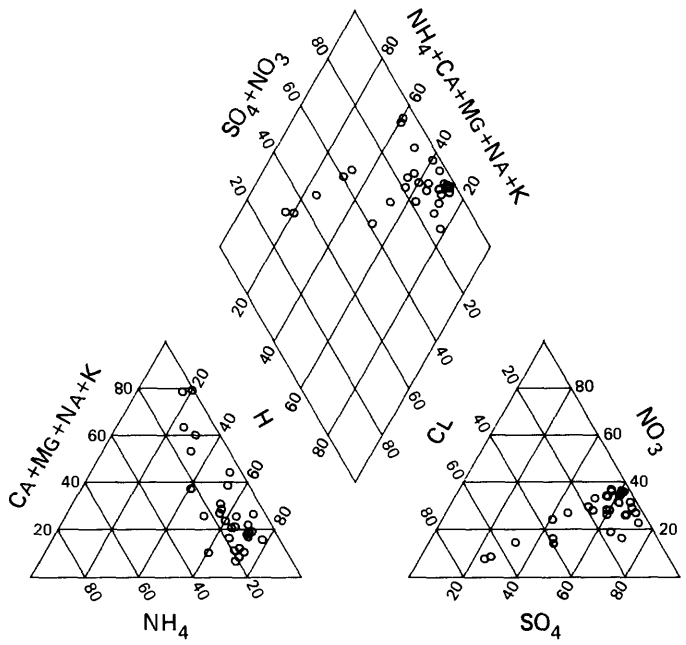
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	7.3	3.54	0.03	0.009	0.025	0.006	0.01	0.09	0.29	0.49	8.32E-03
10 percentile	.00	8.2	3.92	.03	.015	.043	.008	.05	.09	.32	.83	1.24E-02
25 percentile	2.65	12.7	4.13	.06	.021	.069	.016	.06	.14	.64	1.12	1.91E-02
50 percentile	27.40	23.8	4.39	.08	.040	.118	.024	.12	.23	1.25	1.67	4.07E-02
75 percentile	40.80	38.0	4.72	.18	.098	.305	.048	.40	.56	2.28	3.59	7.41E-02
90 percentile	62.10	60.6	4.91	.47	.156	.530	.087	.65	1.02	4.26	5.62	1.22E-01
Maximum value	103.10	144.7	5.08	.72	.221	1.190	.124	1.23	2.22	9.38	12.11	2.88E-01
Volume-weighted mean	NA	22.4	4.40	.09	.053	.306	.026	.16	.58	1.15	1.86	3.93E-02
Arithmetic mean	26.83	31.3	4.41	.16	.062	.225	.035	.26	.43	1.82	2.82	5.78E-02
No. of samples	53	31	31	31	31	31	31	31	31	31	31	31
Total load, g/m2	NA	NA	NA	0.102	0.061	0.349	0.030	0.181	0.666	1.306	2.116	4.5E-02
Maximum interval load, g/m2	NA	NA	NA	.009	.015	.123	.005	.028	.229	.170	0.228	5.5E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.37	0.45	-.36	-.17	.12	-.25	-.40	.10	-.46	-.43	-0.45
P-level		.004	.000	.005	.174	.359	.052	.002	.424	.000	.001	.000



Percentiles of volume-weighted mean concentrations for site NJ99, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site NJ99. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site NJ99.

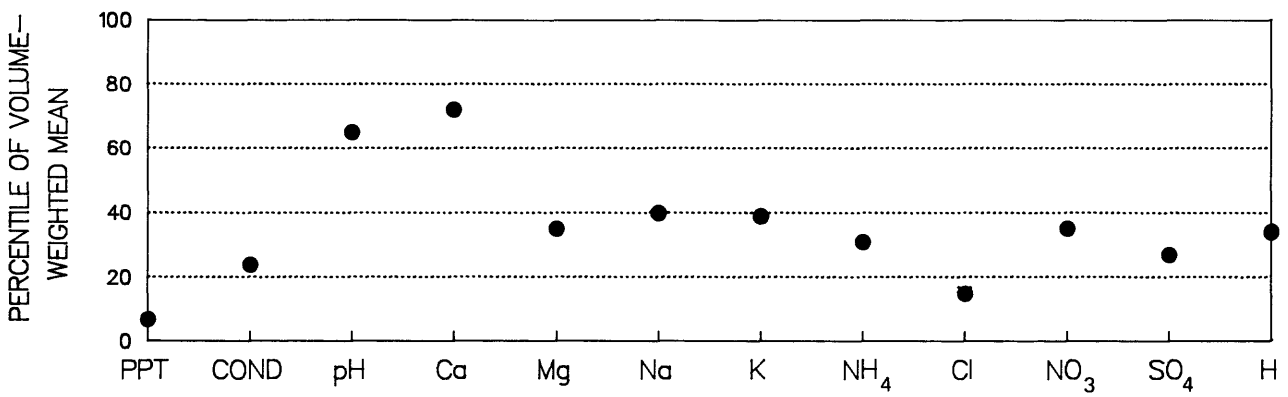
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

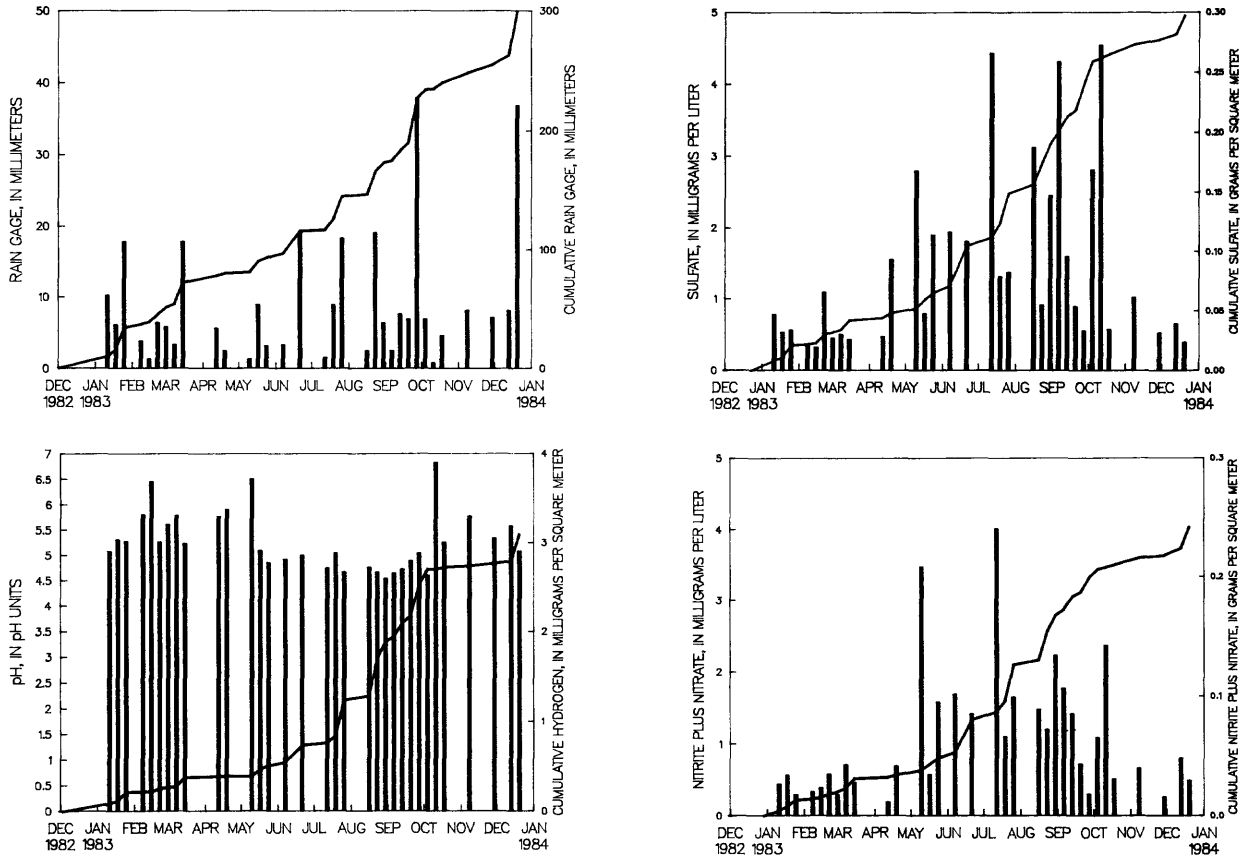
STATION: CUBA, New Mexico — Latitude: 36°02'27" Longitude: 106°58'17"
CAL number: NM09 — Map ID number: 67
ADS number: 280a00
Station altitude above mean sea level, in meters: 2124
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 52 (371)
-- When ppt occurred: 46 (329)
-- When ppt did not occur: 6 (42)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 33 (238)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 52 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 75.5
Percent of total measured ppt with chemical samples: 83.0
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 90.9
Total measured ppt, in mm: 361.8

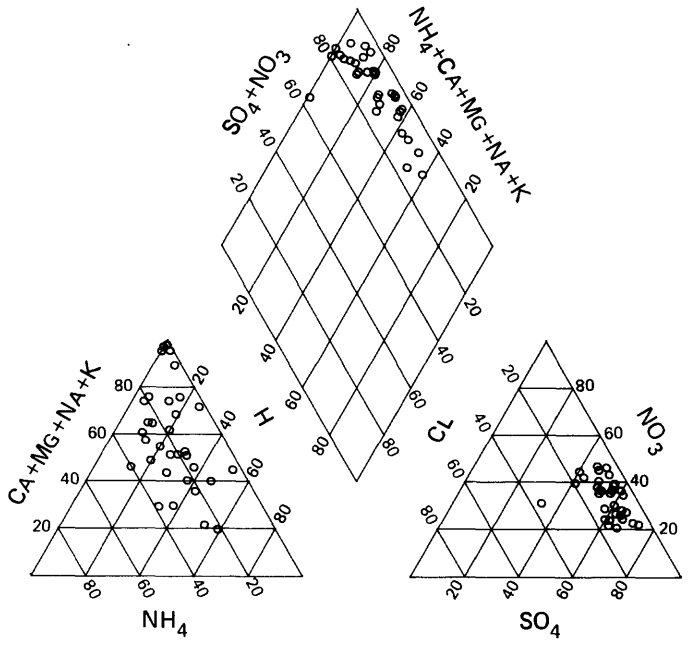
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	3.4	4.54	0.03	0.005	0.019	0.005	0.01	0.03	0.19	0.32	1.48E-04
10 percentile	.00	4.0	4.65	.07	.014	.030	.008	.01	.06	.29	.41	7.16E-04
25 percentile	.92	5.2	4.80	.11	.024	.044	.013	.06	.08	.45	.52	2.10E-03
50 percentile	5.35	7.2	5.09	.23	.037	.079	.023	.11	.10	.71	.91	8.13E-03
75 percentile	8.90	16.5	5.68	.50	.071	.203	.055	.21	.27	1.53	1.92	1.58E-02
90 percentile	18.15	25.5	6.23	1.40	.158	.456	.126	.53	.39	2.31	3.83	2.25E-02
Maximum value	37.90	36.1	6.83	2.21	.974	2.750	.247	.78	.97	4.01	4.54	2.88E-02
Volume-weighted mean	NA	8.8	4.99	.22	.033	.086	.027	.15	.11	.81	.99	1.03E-02
Arithmetic mean	6.96	11.7	5.27	0.45	0.087	0.276	0.045	0.18	0.19	1.08	1.44	9.48E-03
No. of samples	52	33	33	33	33	33	33	33	33	33	33	33
Total load, g/m2	NA	NA	NA	0.067	0.010	0.026	0.008	0.046	0.033	0.242	0.297	3.1E-03
Maximum interval load, g/m2	NA	NA	NA	.010	.001	.003	.001	.010	.004	.030	.034	4.2E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.28	-0.26	-.46	-.65	-.64	-.39	-.12	-.45	-.23	-.24	0.26
P-level		.023	.039	.000	.000	.000	.002	.342	.000	.065	.056	.039



Percentiles of volume-weighted mean concentrations for site NM09, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site NM09. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site NM09.

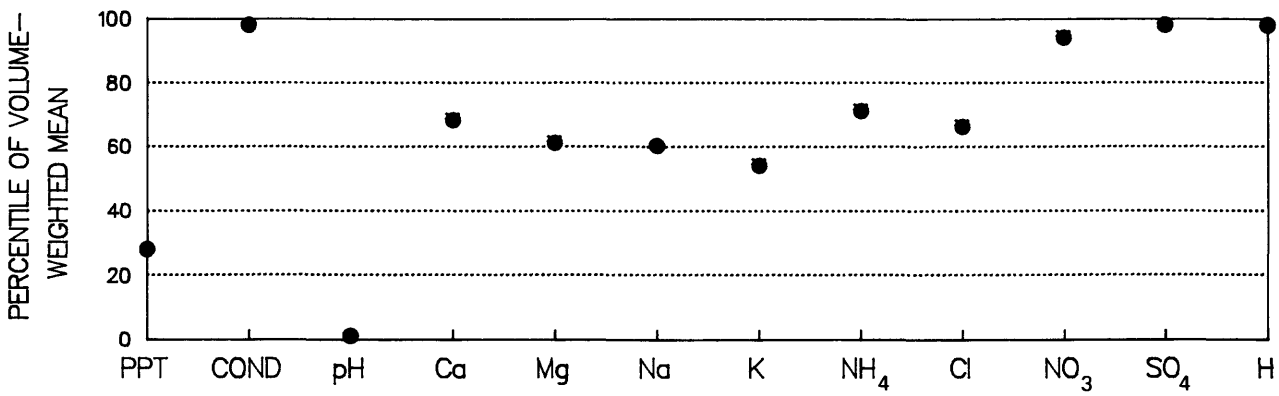
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

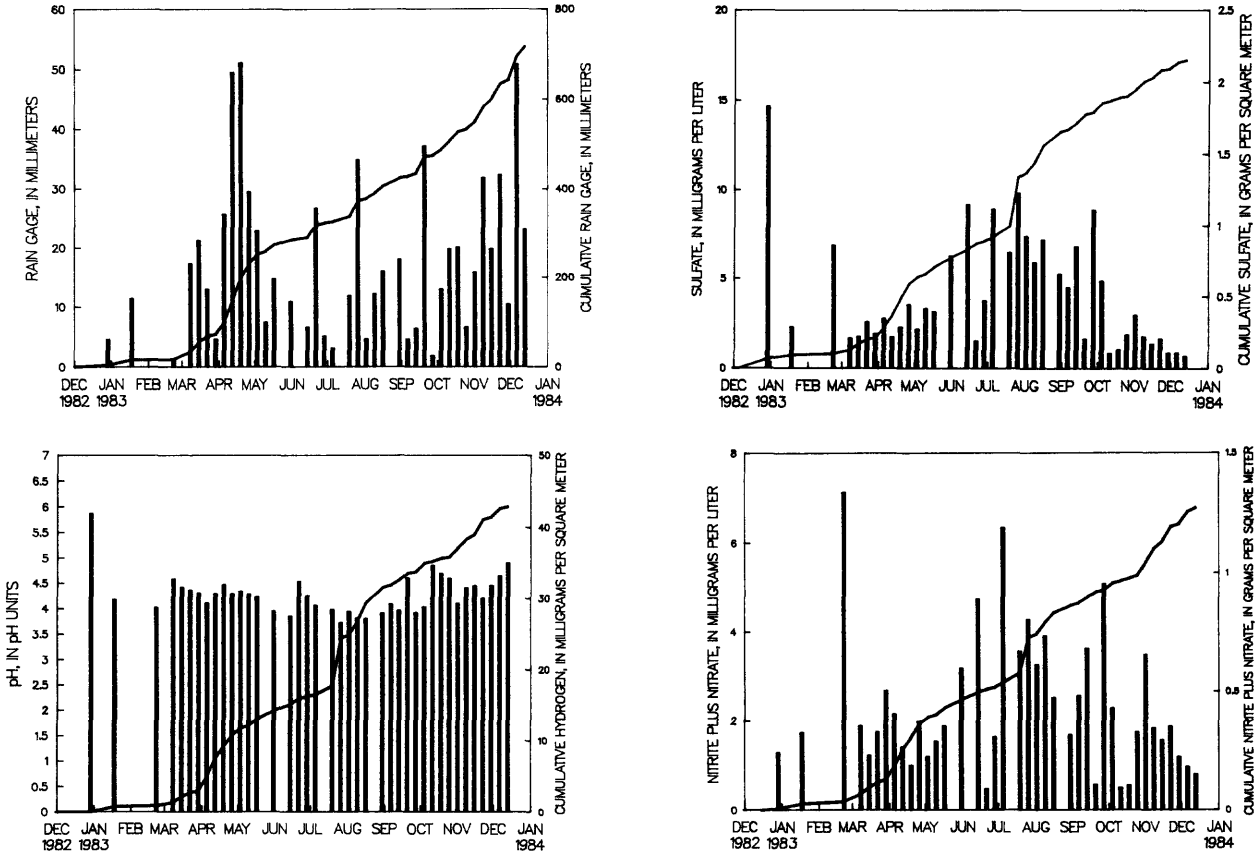
STATION: Aurora, New York — Latitude: 42°44'02" Longitude: 76°39'35"
CAL number: NY08 — Map ID number: 68
ADS number: 040a00
Station altitude above mean sea level, in meters: 249
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 53 (370)
-- When ppt occurred: 50 (349)
-- When ppt did not occur: 3 (21)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 40 (279)

Station summary period: 12/29/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (370 days)
Percent summary period with ppt measurements: 99.7
Percent summary period with chemical samples or no ppt: 80.9
Percent of total measured ppt with chemical samples: 90.4
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 91.2
Total measured ppt, in mm: 793.5

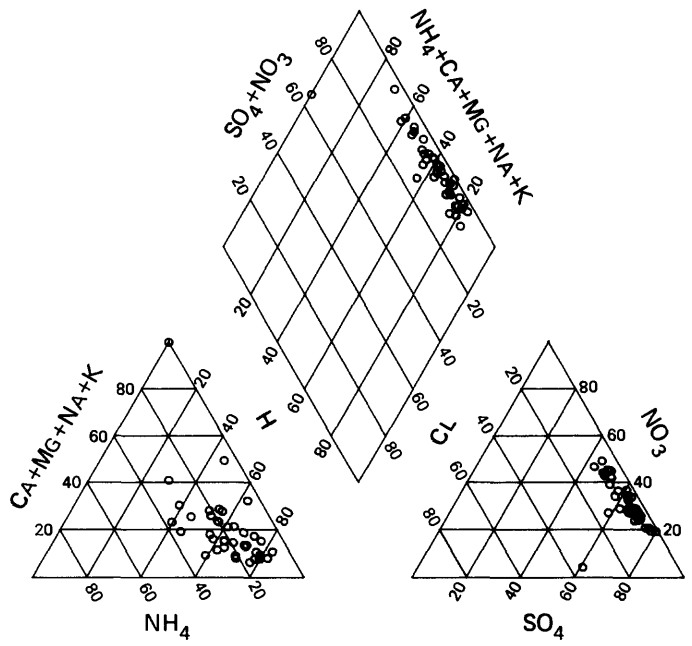
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	7.9	3.72	0.02	0.006	0.017	0.003	0.01	0.01	0.47	0.68	1.35E-03
10 percentile	.82	12.9	3.86	.04	.008	.023	.008	.07	.07	.59	.88	2.07E-02
25 percentile	4.60	21.3	3.99	.07	.016	.040	.010	.14	.10	1.24	1.67	3.43E-02
50 percentile	11.90	30.9	4.26	.14	.028	.057	.021	.29	.16	1.86	2.84	5.44E-02
75 percentile	22.10	62.8	4.46	.42	.084	.147	.058	.57	.29	3.24	6.42	1.02E-01
90 percentile	33.80	76.7	4.68	.79	.160	.256	.128	.86	.51	4.69	8.91	1.39E-01
Maximum value	51.10	101.0	5.87	7.34	1.481	7.520	.491	1.62	6.23	7.13	14.64	1.91E-01
Volume-weighted mean	NA	32.3	4.22	.21	.045	.118	.031	.29	.20	1.78	3.01	5.98E-02
Arithmetic mean	14.97	40.4	4.29	.46	.094	.283	.049	.40	.36	2.33	4.06	6.86E-02
No. of samples	53	40	40	40	40	40	40	40	40	40	40	40
Total load, g/m2	NA	NA	NA	0.148	0.032	0.084	0.023	0.209	0.142	1.273	2.155	4.3E-02
Maximum interval load, g/m2	NA	NA	NA	.034	.007	.034	.005	.023	.028	0.149	0.341	6.6E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.38	0.24	-.50	-.57	-.50	-.51	-.27	-.50	-.40	-0.41	-0.24
P-level		.001	.031	.000	.000	.000	.000	.014	.000	.000	.000	.031



Percentiles of volume-weighted mean concentrations for site NY08, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site NY08. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site NY08.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

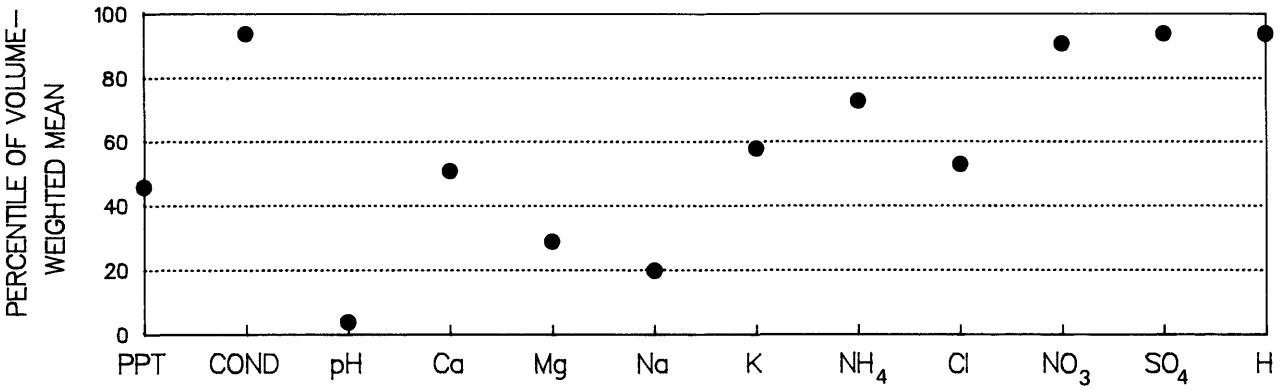
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Chautauqua, New York — Latitude: 42°17'58" Longitude: 79°23'47"
CAL number: NY10 — Map ID number: 69
ADS number: 041a00
Station altitude above mean sea level, in meters: 488
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 53 (371)
-- When ppt occurred: 52 (364)
-- When ppt did not occur: 1 (7)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 39 (273)

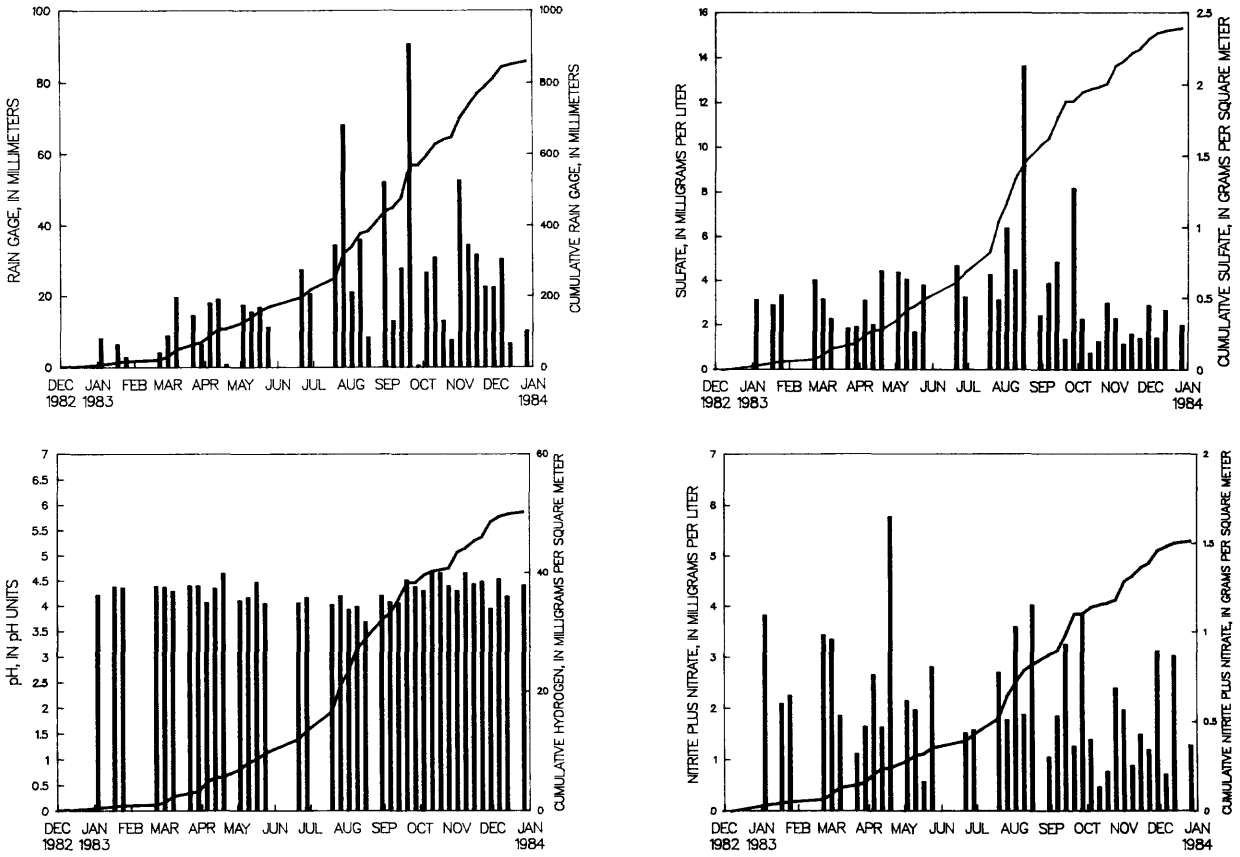
Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 75.5
Percent of total measured ppt with chemical samples: 82.2
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 97.0

Total measured ppt, in mm: 1046.2

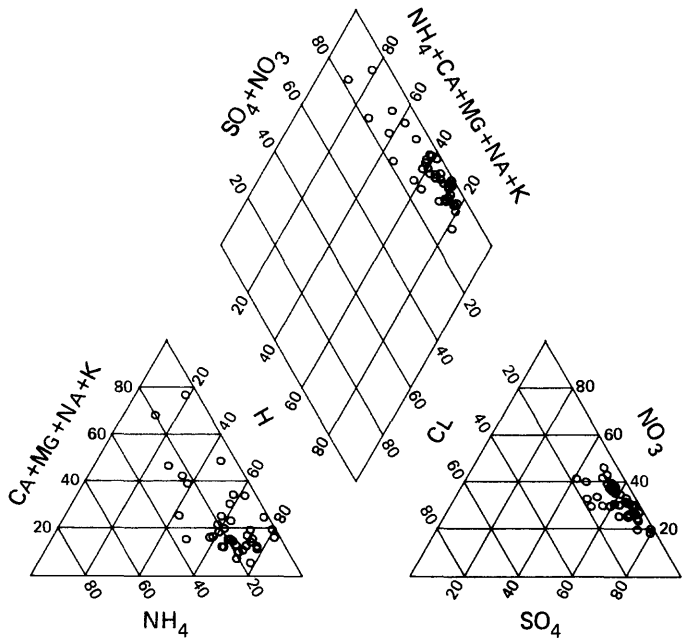
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ce, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	10.1	3.69	0.04	0.008	0.013	0.007	0.01	0.04	0.47	0.73	2.00E-02
10 percentile	.38	16.1	3.99	.06	.014	.023	.011	.05	.07	.77	1.35	2.24E-02
25 percentile	6.50	22.1	4.08	.07	.020	.038	.015	.13	.10	1.28	1.89	3.89E-02
50 percentile	16.80	31.5	4.30	.21	.035	.063	.031	.29	.19	1.87	2.97	5.01E-02
75 percentile	29.20	42.7	4.41	.32	.058	.161	.059	.44	.27	3.02	4.05	8.32E-02
90 percentile	39.80	47.0	4.65	.58	.121	.396	.175	.71	.64	3.82	4.82	1.02E-01
Maximum value	90.70	96.1	4.70	2.38	.308	1.070	.918	.96	1.41	5.77	13.60	2.04E-01
Volume-weighted mean	NA	30.0	4.23	.16	.032	.064	.032	.30	.17	1.76	2.79	5.86E-02
Arithmetic mean	19.74	33.3	4.28	.28	.054	.140	.079	.33	.28	2.16	3.29	5.99E-02
No. of samples	53	39	39	39	39	39	39	39	39	39	39	39
Total load, g/m2	NA	NA	NA	0.138	0.028	0.055	0.027	0.255	0.142	1.512	2.392	5.0E-02
Maximum interval load, g/m2	NA	NA	NA	.019	.003	.004	.002	.024	.010	.120	.211	4.3E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.14	-0.07	-.45	-.49	-.56	-.52	-.14	-.50	-.35	-.19	0.07
P-level		.208	.529	.000	.000	.000	.000	.208	.000	.002	.093	.529



Percentiles of volume-weighted mean concentrations for site NY10, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site NY10.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site NY10.

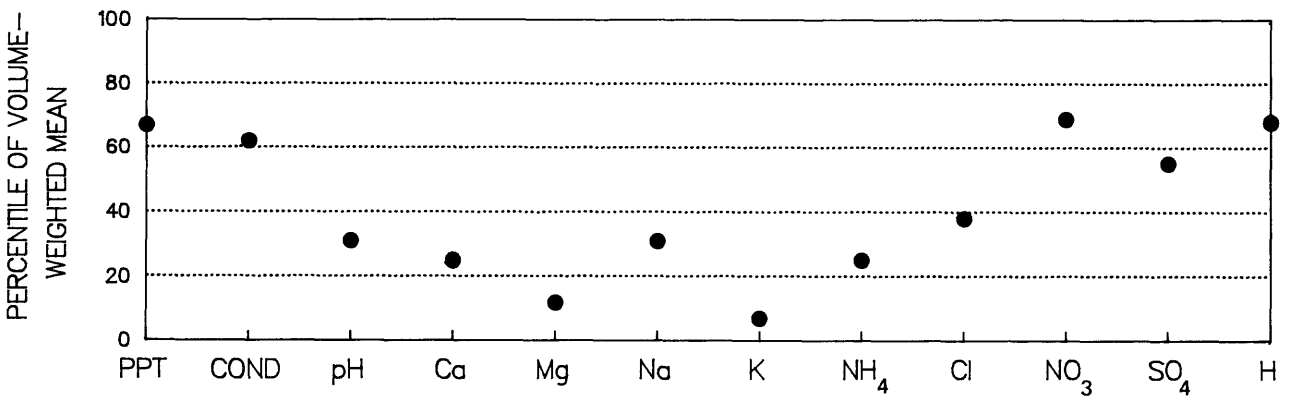
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

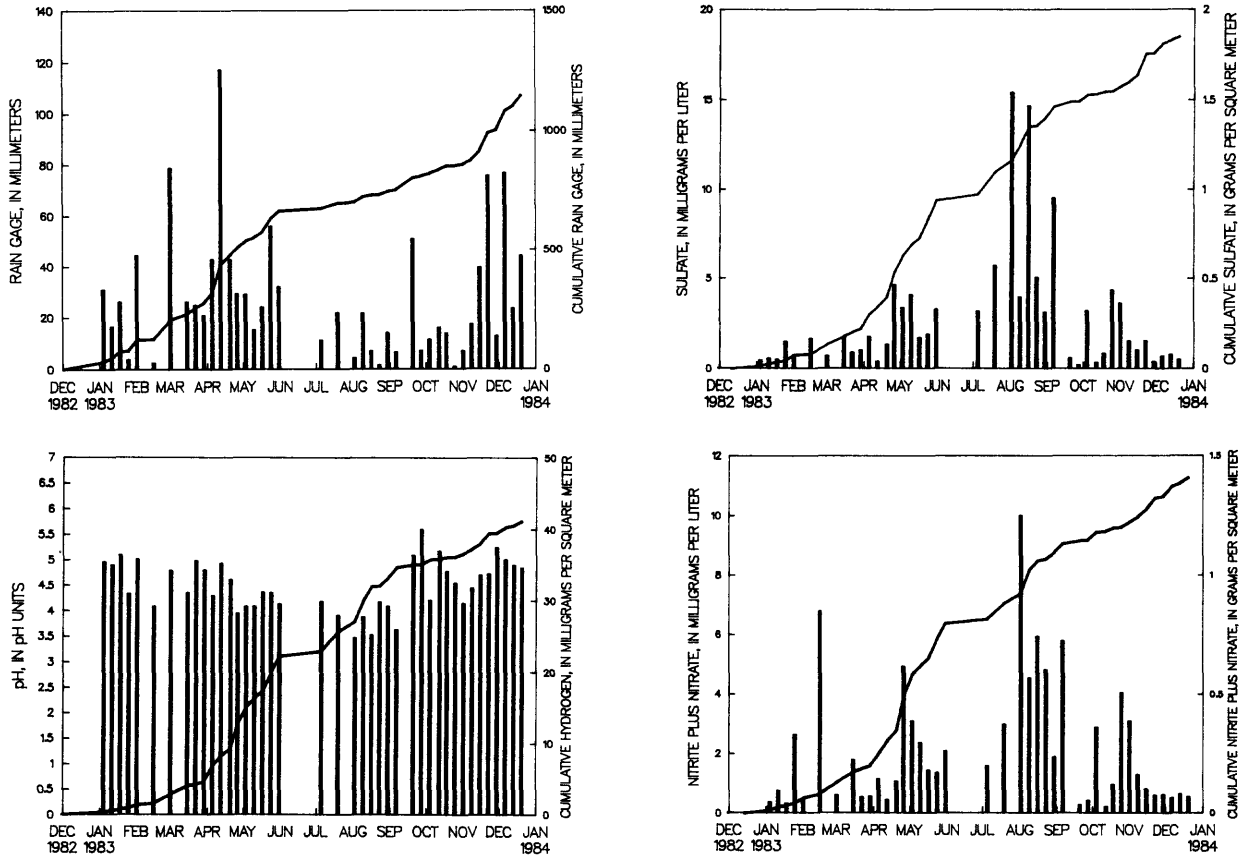
STATION: Knobit, New York — Latitude: 42°22'41" Longitude: 73°30'10"
CAL number: NY12 — Map ID number: 70
ADS number: 042a00
Station altitude above mean sea level, in meters: 406
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 49 (371)
-- When ppt occurred: 47 (357)
-- When ppt did not occur: 2 (14)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 41 (316)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 49 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 88.9
Percent of total measured ppt with chemical samples: 94.5
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 93.8
Total measured ppt, in mm: 1214.5

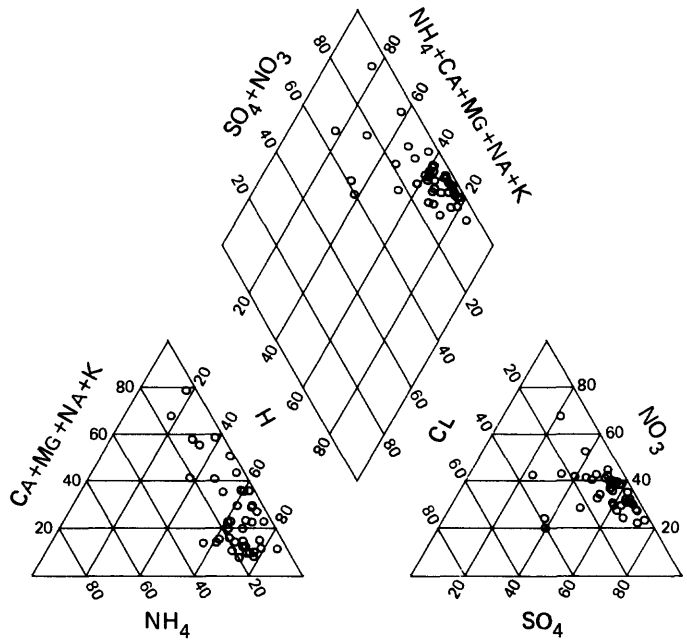
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	4.1	3.47	0.01	0.008	0.021	0.006	0.01	0.05	0.21	0.18	2.51E-03
10 percentile	1.00	5.4	3.89	.02	.010	.031	.007	.01	.06	.38	.39	7.94E-03
25 percentile	7.00	7.5	4.11	.05	.013	.050	.010	.03	.09	.55	.68	1.22E-02
50 percentile	17.30	22.3	4.45	.09	.027	.091	.021	.12	.16	1.30	1.52	3.55E-02
75 percentile	31.50	40.8	4.91	.20	.051	.135	.035	.36	.25	3.03	3.47	7.77E-02
90 percentile	55.90	58.5	5.10	.42	.114	.271	.062	.59	.49	5.61	5.59	1.30E-01
Maximum value	117.10	170.2	5.60	1.23	.226	.685	.132	1.04	.83	10.00	15.40	3.39E-01
Volume-weighted mean	NA	19.4	4.44	.08	.023	.078	.018	.14	.14	1.23	1.61	3.59E-02
Arithmetic mean	24.79	32.0	4.50	.17	.044	.119	.029	.23	.21	2.13	2.72	5.95E-02
No. of samples	49	41	41	41	41	41	41	41	41	41	41	41
Total load, g/m2	NA	NA	NA	0.091	0.026	0.090	0.021	0.159	0.166	1.409	1.850	4.1E-02
Maximum interval load, g/m2	NA	NA	NA	.010	.003	.011	.002	.017	.018	0.144	0.135	3.4E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.29	0.26	-.59	-.63	-.49	-.40	-.28	-.44	-.41	-.28	-0.26
P-level		.007	.017	.000	.000	.000	.000	.012	.000	.000	.009	.017



Percentiles of volume-weighted mean concentrations for site NY12, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site NY12.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site NY12.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

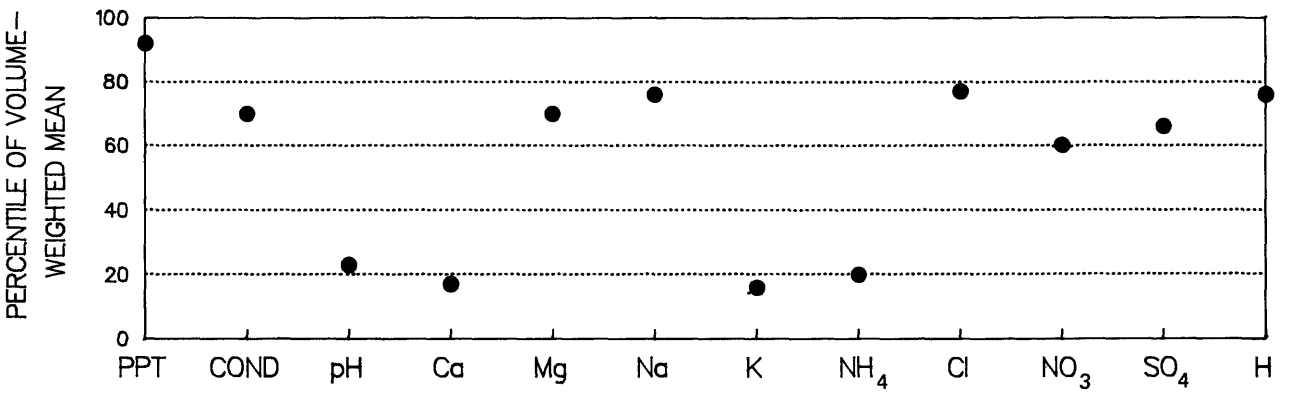
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Stilwell Lake, New York — Latitude: 41°21'00" Longitude: 74°02'22"
CAL number: NY51 — Map ID number: 71
ADS number: 045a00
Station eltitude above mean sea level, in meters: 186
Number of sampling intervals (days in parenthesis):

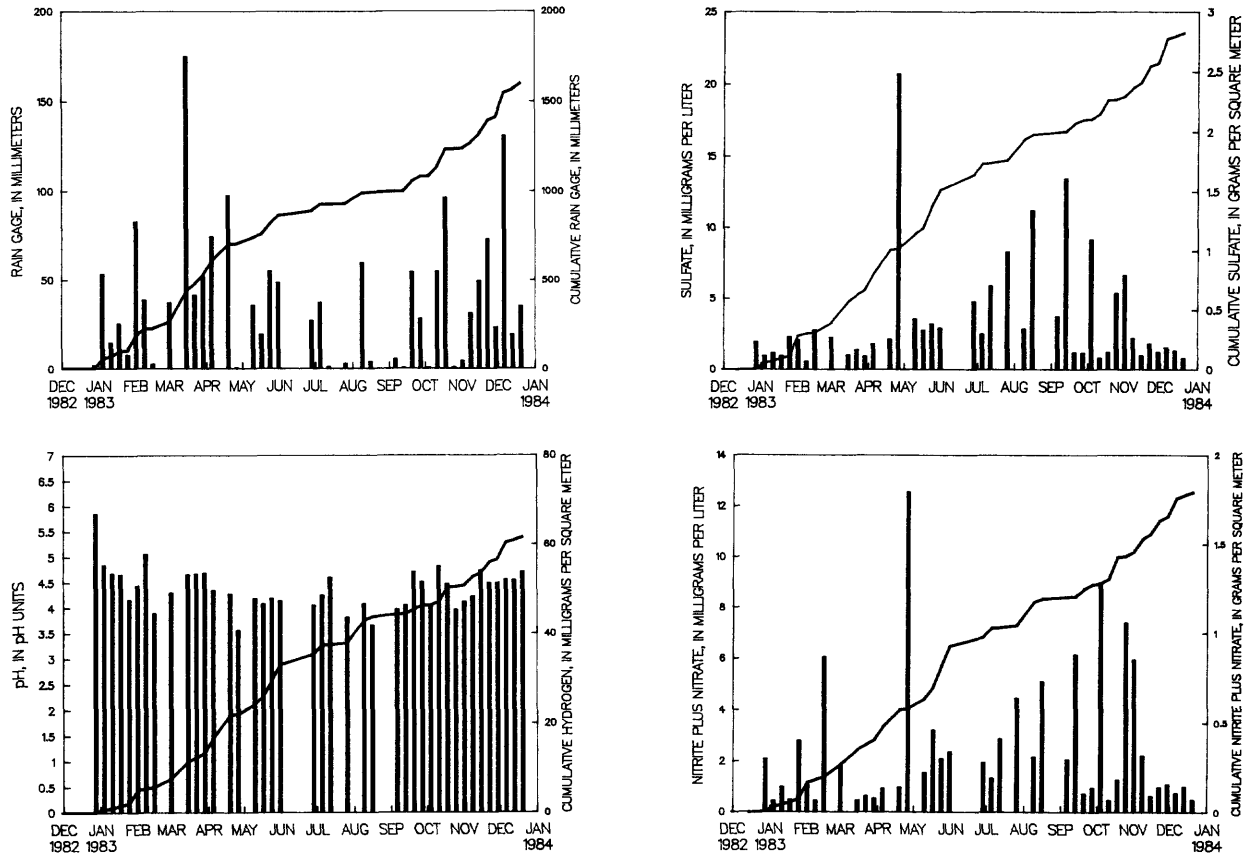
-- With ppt measurements:	53	(371)
-- When ppt occurred:	51	(357)
-- When ppt did not occur:	2	(14)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	41	(287)

Station summary period: 12/28/1982 to 01/03/1984
Length of summery period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 81.1
Percent of total measured ppt with chemical samples: 88.5
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 93.7
Total measured ppt, in mm: 1851.2

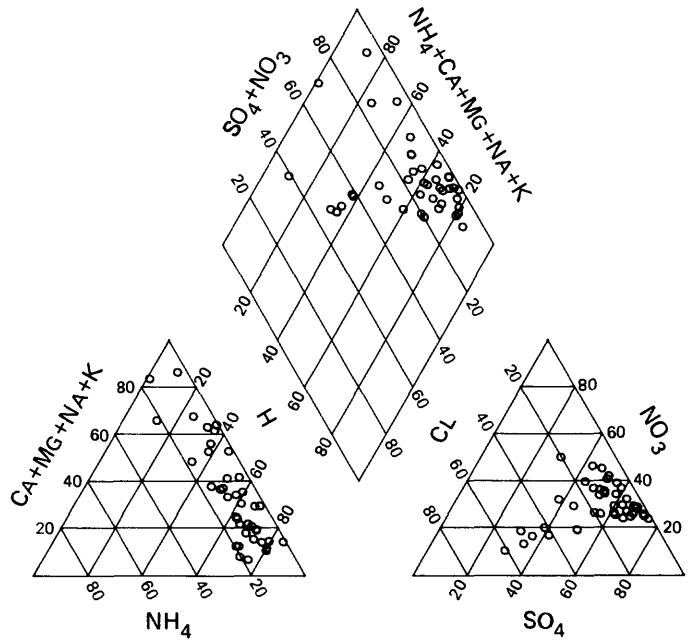
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	5.3	3.56	0.02	0.011	0.022	0.006	0.01	0.06	0.45	0.55	1.38E-03
10 percentile	.50	11.2	3.90	.03	.018	.056	.007	.01	.11	.48	.91	1.57E-02
25 percentile	2.65	13.8	4.08	.05	.025	.096	.015	.06	.16	.75	1.16	2.16E-02
50 percentile	26.90	26.9	4.35	.08	.049	.167	.023	.14	.27	1.34	2.11	4.47E-02
75 percentile	54.10	41.9	4.66	.21	.112	.448	.043	.33	.77	2.84	3.62	8.32E-02
90 percentile	84.18	83.2	4.80	1.68	.340	1.058	.179	.68	1.70	6.14	8.97	1.25E-01
Maximum value	174.80	180.7	5.86	2.39	1.849	11.888	.921	1.67	20.95	12.55	20.68	2.75E-01
Volume-weighted mean	NA	21.6	4.41	.07	.047	.279	.022	.11	.49	1.12	1.76	3.85E-02
Arithmetic mean	34.93	38.2	4.38	.36	.135	.629	.080	.25	1.03	2.46	3.48	6.08E-02
No. of samples	53	41	41	41	41	41	41	41	41	41	41	41
Total load, g/m2	NA	NA	NA	0.120	0.075	0.447	0.035	0.181	0.788	1.793	2.824	6.2E-02
Maximum interval load, g/m2	NA	NA	NA	.008	.016	.127	.005	.018	.226	0.130	0.206	5.1E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.42	0.33	-.48	-.43	-.24	-.48	-.40	-.22	-.51	-.41	-0.33
P-level		.000	.003	.000	.000	.028	.000	.000	.049	.000	.000	.003



Percentiles of volume-weighted mean concentrations for site NY51, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site NY51. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site NY51.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

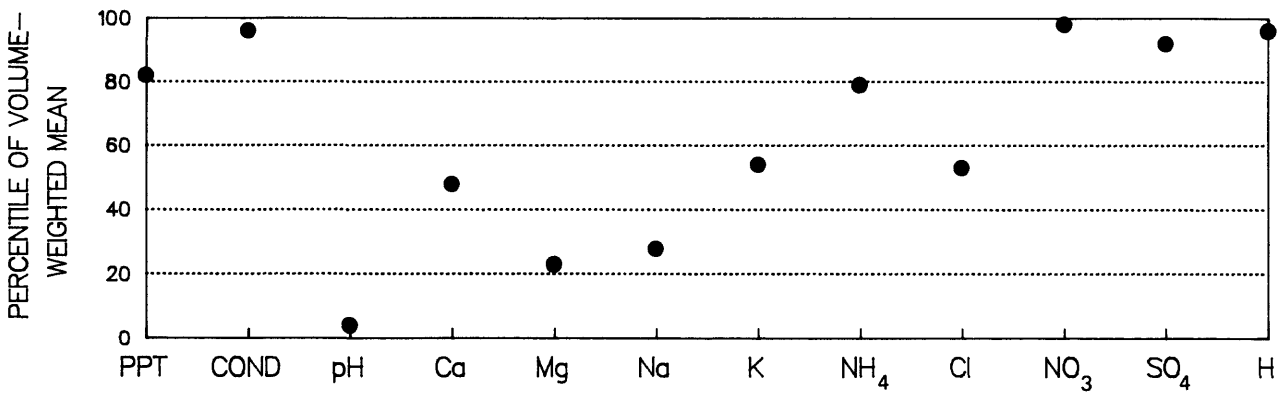
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Bennett Bridge, New York — Latitude: 43°31'34" Longitude: 75°56'50"
CAL number: NY52 — Map ID number: 72
ADS number: 046a00
Station altitude above mean sea level, in meters: 245
Number of sampling intervals (days in parenthesis):

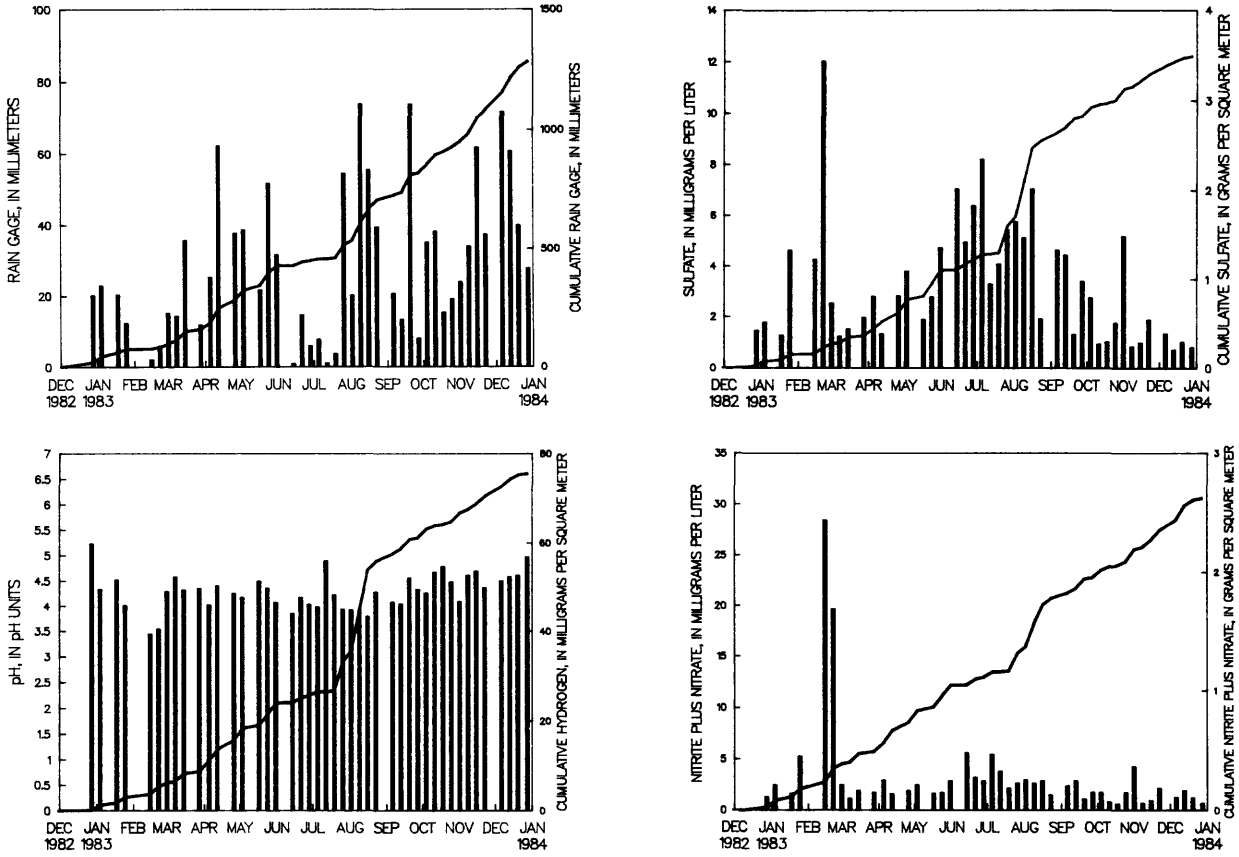
-- With ppt measurements:	51	(364)
-- When ppt occurred:	49	(351)
-- When ppt did not occur:	2	(13)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	44	(317)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 52 sampling intervals (371 days)
Percent summary period with ppt measurements: 98.1
Percent summary period with chemical samples or no ppt: 88.9
Percent of total measured ppt with chemical samples: 88.0
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 94.2
Total measured ppt, in mm: 1458.4

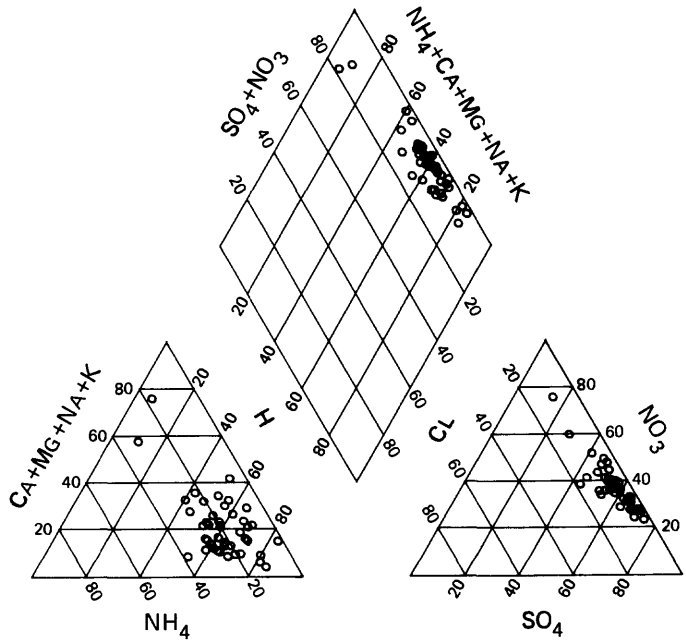
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	8.0	3.44	0.03	0.009	0.015	0.008	0.01	0.07	0.59	0.71	5.89E-03
10 percentile	1.20	11.9	3.87	.05	.013	.024	.011	.07	.09	.87	.95	1.85E-02
25 percentile	12.20	17.0	4.03	.09	.020	.040	.014	.16	.11	1.51	1.32	2.82E-02
50 percentile	22.90	28.9	4.30	.15	.030	.068	.031	.31	.17	2.03	2.77	4.96E-02
75 percentile	39.40	52.4	4.55	.35	.066	.136	.049	.58	.24	2.87	4.70	9.28E-02
90 percentile	62.10	71.1	4.73	.91	.204	.386	.138	.85	.66	5.34	6.71	1.34E-01
Maximum value	73.70	203.7	5.23	1.62	.283	.753	.495	2.30	2.03	28.44	12.02	3.63E-01
Volume-weighted mean	NA	31.2	4.23	.15	.030	.075	.031	.32	.17	2.04	2.72	5.89E-02
Arithmetic mean	28.60	40.2	4.29	.29	.059	.131	.058	.43	.28	3.24	3.29	7.09E-02
No. of samples	51	44	44	44	44	44	44	44	44	44	44	44
Total load, g/m2	NA	NA	NA	0.186	0.039	0.096	0.039	0.413	0.220	2.625	3.494	7.6E-02
Maximum interval load, g/m2	NA	NA	NA	.010	.002	.015	.008	.034	.022	0.192	0.390	9.3E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.26	0.18	-.51	-.55	-.46	-.53	-.25	-.37	-.33	-.26	-0.18
P-level		.014	.085	.000	.000	.000	.000	.019	.001	.001	.012	.085



Percentiles of volume-weighted mean concentrations for site NY52, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site NY52. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site NY52.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

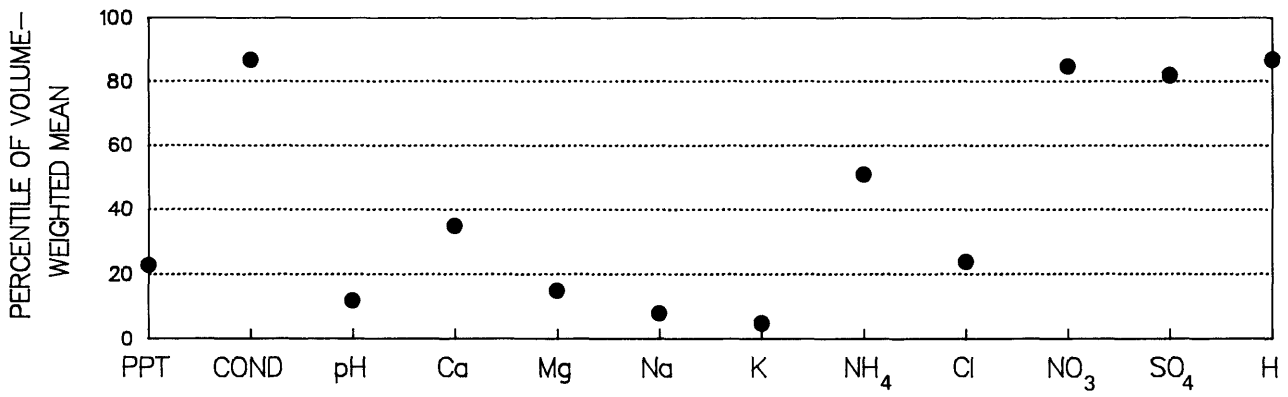
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Jasper, New York — Latitude: 42°06'22" Longitude: 77°32'08"
CAL number: NY65 — Map ID number: 73
ADS number: 047a00
Station altitude above mean sea level, in meters: 634
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 52 (371)
-- When ppt occurred: 50 (357)
-- When ppt did not occur: 2 (14)
-- When sample volume was substituted for missing rain gage: 6 (43)
-- With chemical samples: 44 (308)

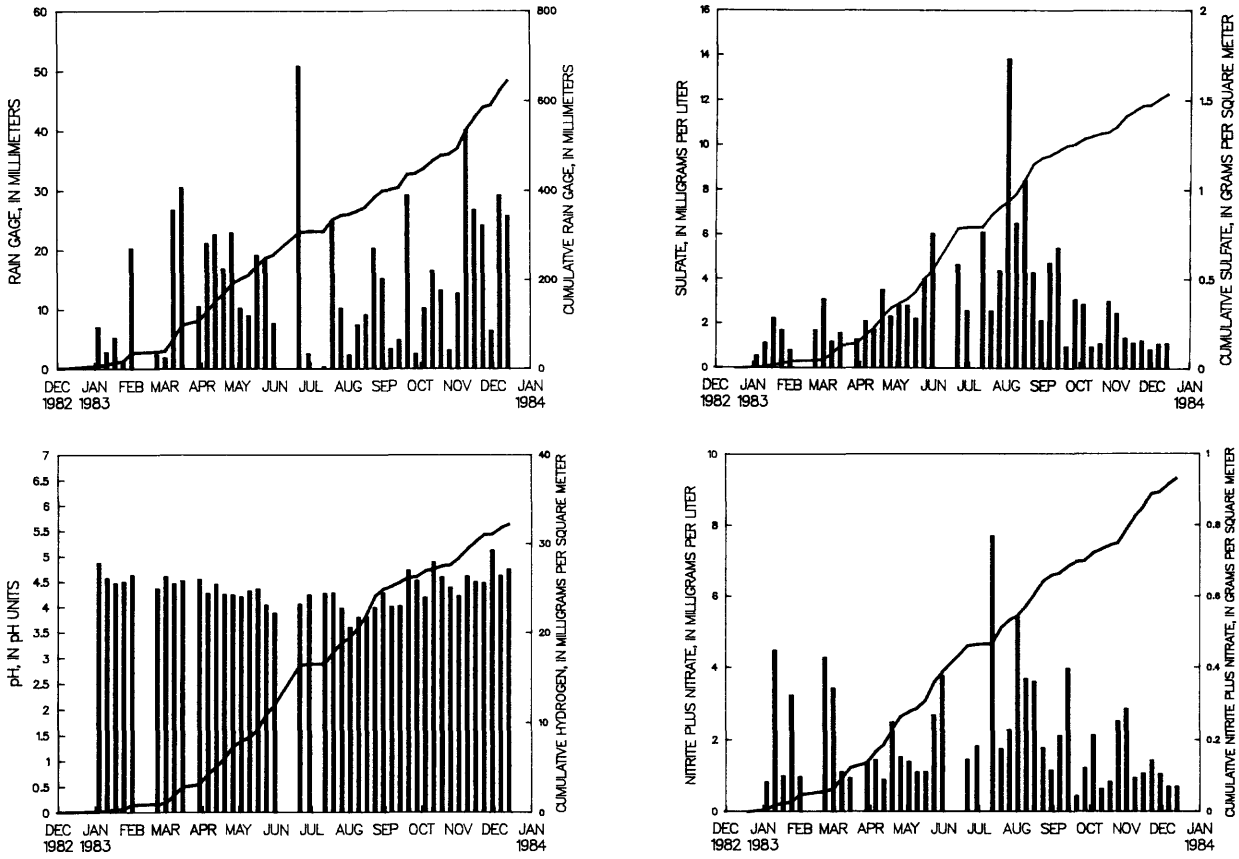
Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 52 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 86.8
Percent of total measured ppt with chemical samples: 96.2
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 95.8

Total measured ppt, in mm: 672.1

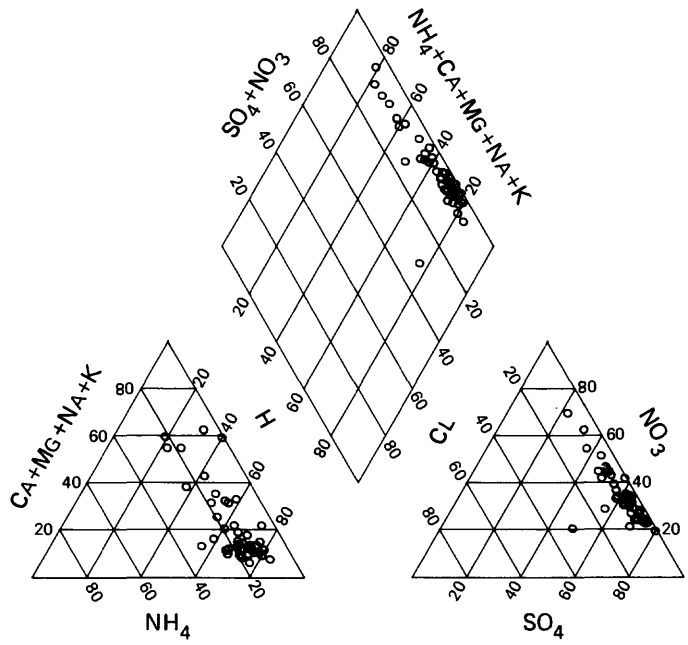
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	8.2	3.60	0.01	0.004	0.015	0.004	0.01	0.01	0.43	0.54	7.59E-03
10 percentile	.16	10.7	3.93	.03	.010	.022	.006	.06	.05	.76	.97	1.82E-02
25 percentile	2.87	16.9	4.19	.07	.018	.031	.010	.09	.08	1.01	1.19	2.72E-02
50 percentile	10.20	25.5	4.36	.13	.030	.048	.016	.21	.12	1.45	2.26	4.32E-02
75 percentile	20.90	40.4	4.56	.26	.060	.105	.033	.41	.23	2.81	3.87	6.42E-02
90 percentile	28.45	61.0	4.74	.58	.120	.189	.060	.58	.40	4.11	6.07	1.18E-01
Maximum value	50.80	124.3	5.12	2.11	.489	.817	.105	1.09	.99	7.68	13.82	2.51E-01
Volume-weighted mean	NA	25.4	4.30	.11	.025	.048	.016	.22	.12	1.44	2.38	4.99E-02
Arithmetic mean	12.92	30.9	4.35	.23	.052	.099	.025	.28	.18	2.07	2.94	5.75E-02
No. of samples	52	44	44	44	44	44	44	44	44	44	44	44
Total load, g/m2	NA	NA	NA	0.071	0.016	0.031	0.010	0.143	0.079	0.932	1.536	3.2E-02
Maximum interval load, g/m2	NA	NA	NA	.007	.001	.002	.001	.021	.015	.074	0.236	4.4E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.29	0.16	-.62	-.67	-.67	-.48	-.26	-.53	-.45	-.28	-0.16
P-level		.006	.129	.000	.000	.000	.000	.016	.000	.000	.008	.129



Percentiles of volume-weighted mean concentrations for site NY65, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site NY65.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site NY65.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Delaware, Ohio — Latitude: 40°21'19" Longitude: 83°03'58"

CAL number: OH17 — Map ID number: 76

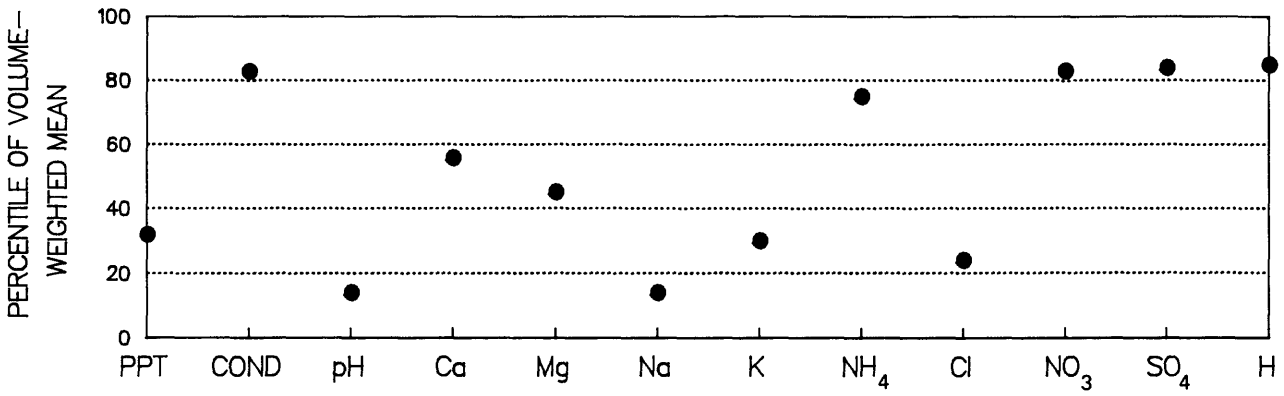
ADS number: 055a00 — Station summary period: 12/28/1982 to 01/03/1984

Station altitude above mean sea level, in meters: 285 — Length of summary period: 53 sampling intervals (371 days)

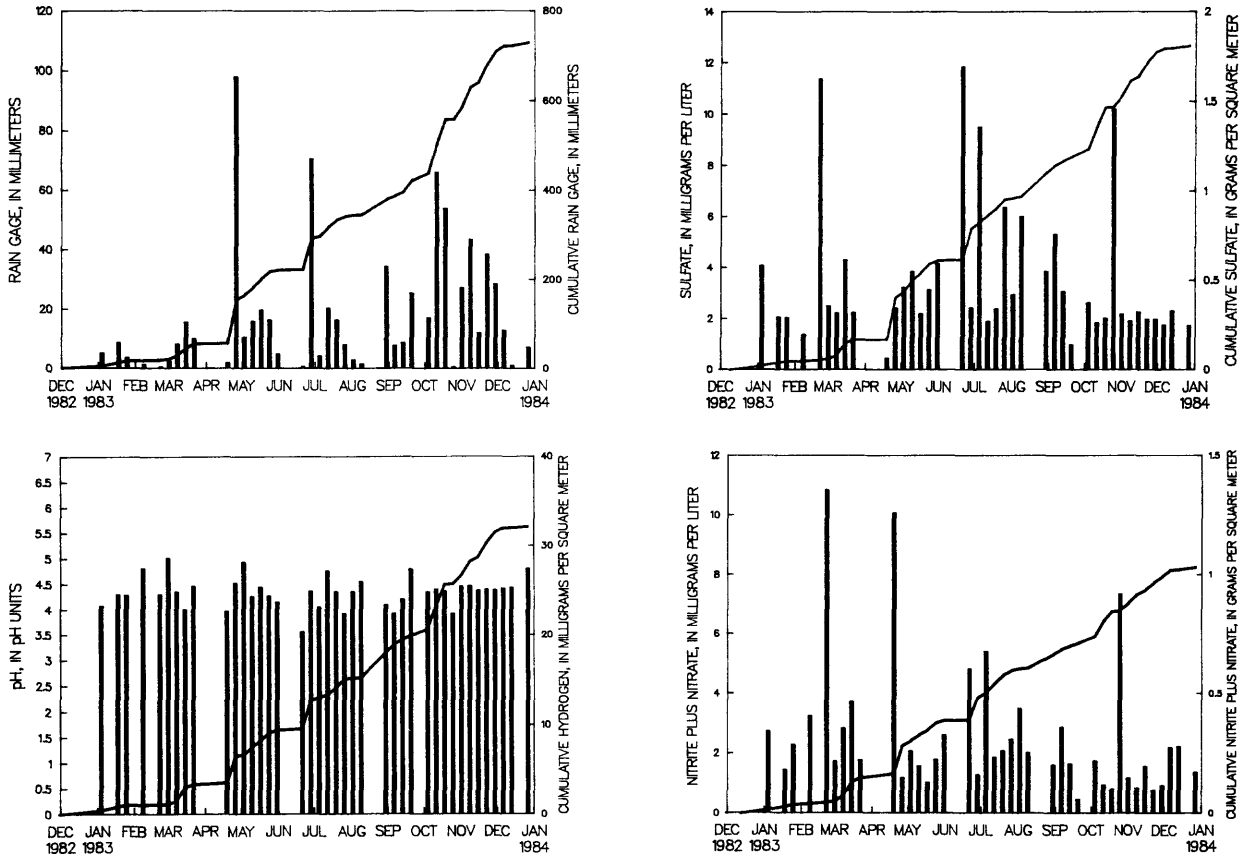
Number of sampling intervals (days in parenthesis):

-- With ppt measurements:	53	(371)	Percent summary period with ppt measurements:	100.0
-- When ppt occurred:	52	(364)	Percent summary period with chemical samples or no ppt:	77.4
-- When ppt did not occur:	1	(7)	Percent of total measured ppt with chemical samples:	83.5
-- When sample volume was substituted for missing rain gage:	0	(0)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	100.2
-- With chemical samples:	40	(280)	Total measured ppt, in mm:	872.8

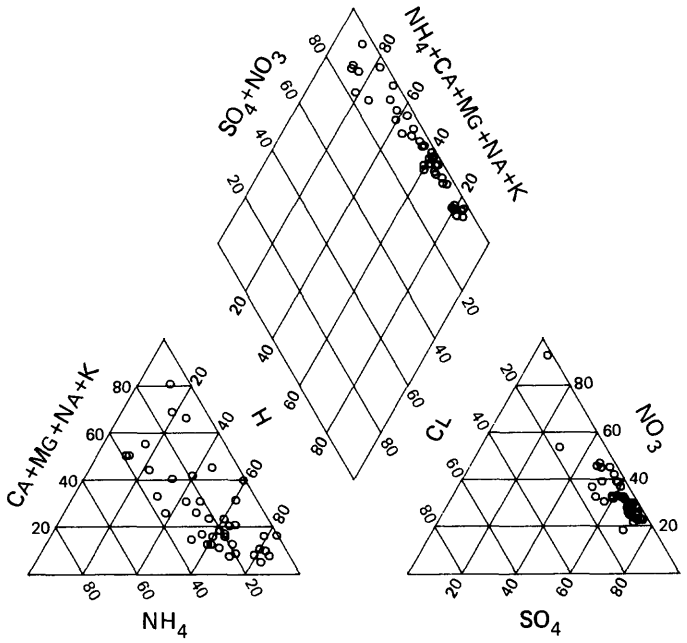
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	9.2	3.56	0.02	0.005	0.011	0.002	0.01	0.04	0.46	0.44	9.77E-03
10 percentile	.30	17.3	3.92	.05	.010	.023	.006	.06	.06	.85	1.72	1.59E-02
25 percentile	2.15	20.5	4.16	.11	.026	.035	.016	.11	.10	1.30	1.98	3.49E-02
50 percentile	8.60	26.5	4.35	.23	.046	.078	.029	.37	.15	1.82	2.39	4.42E-02
75 percentile	23.40	41.8	4.46	.54	.092	.160	.057	.57	.23	2.81	4.01	6.89E-02
90 percentile	42.92	68.6	4.80	1.19	.298	.347	.136	.96	.57	5.33	9.18	1.19E-01
Maximum value	98.00	198.2	5.01	2.23	.677	.967	.607	2.86	2.26	10.84	11.83	2.75E-01
Volume-weighted mean	NA	24.4	4.36	.17	.036	.055	.026	.31	.12	1.41	2.48	4.41E-02
Arithmetic mean	16.47	36.7	4.34	.42	.095	.147	.057	.46	.25	2.57	3.51	5.72E-02
No. of samples	53	40	40	40	40	40	40	40	40	40	40	40
Total load, g/m2	NA	NA	NA	0.128	0.026	0.040	0.019	0.226	0.086	1.030	1.807	3.2E-02
Maximum interval load, g/m2	NA	NA	NA	.024	.005	.009	.004	.052	.015	0.116	0.236	3.1E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.41	0.21	-.55	-.59	-.67	-.42	-.26	-.57	-.58	-.29	-0.21
P-level		.000	.057	.000	.000	.000	.000	.020	.000	.000	.008	.057



Percentiles of volume-weighted mean concentrations for site OH17, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site OH17.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site OH17.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

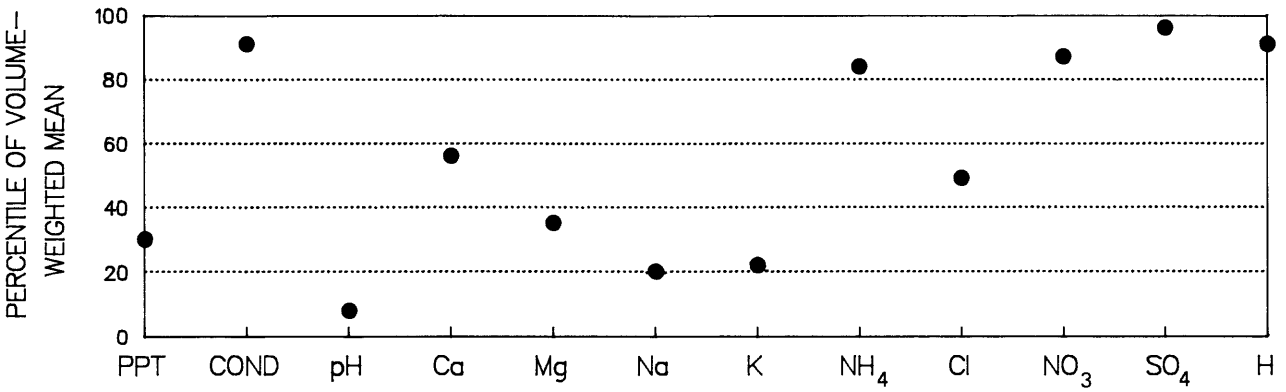
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Wooster, Ohio — Latitude: 40°46'48" Longitude: 81°55'31"
CAL number: OH71 — Map ID number: 78
ADS number: 058a00
Station altitude above mean sea level, in meters: 315
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 53 (371)
-- When ppt occurred: 52 (364)
-- When ppt did not occur: 1 (7)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 35 (245)

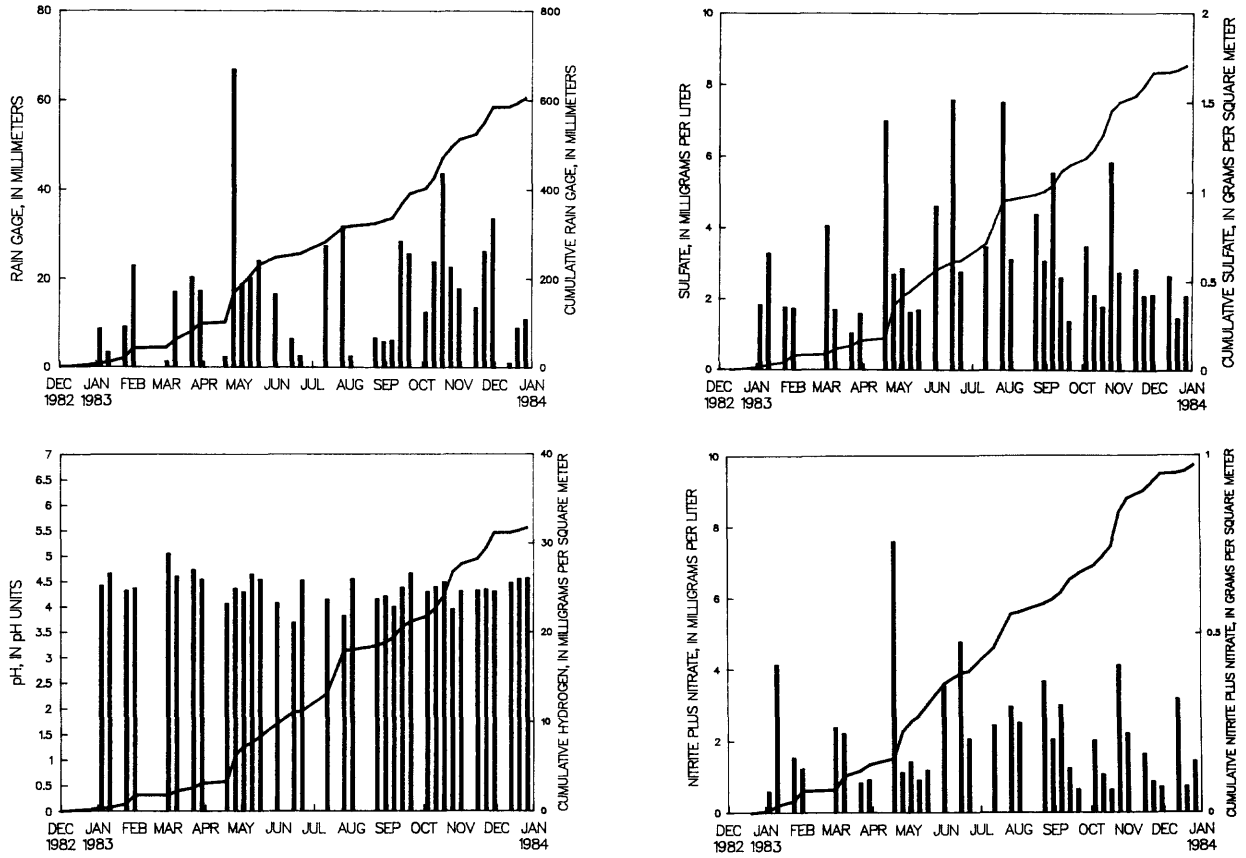
Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 67.9
Percent of total measured ppt with chemical samples: 70.5
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 98.9

Total measured ppt, in mm: 860.1

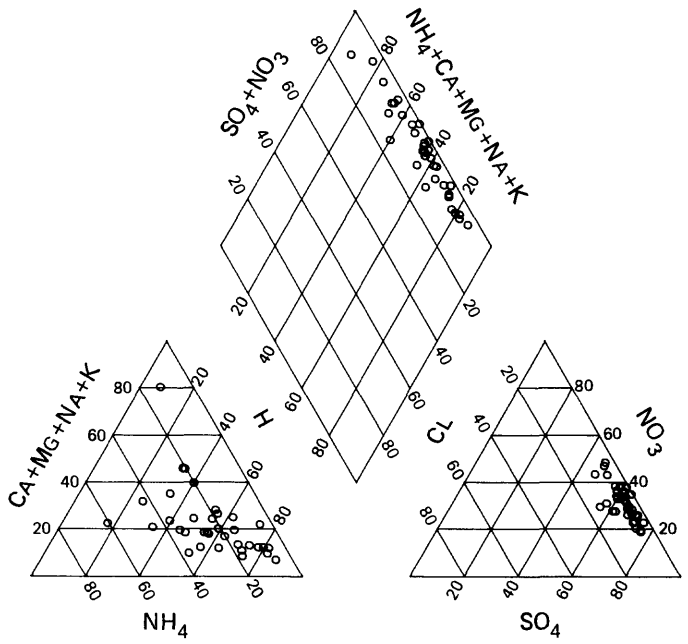
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	11.7	3.69	0.04	0.012	0.017	0.005	0.06	0.01	0.59	1.03	8.91E-03
10 percentile	.24	15.1	3.98	.06	.013	.023	.008	.08	.06	.69	1.53	2.19E-02
25 percentile	2.90	20.1	4.21	.11	.020	.030	.012	.13	.10	.92	1.76	2.82E-02
50 percentile	16.50	25.0	4.37	.20	.037	.054	.027	.37	.14	1.64	2.69	4.27E-02
75 percentile	24.00	31.0	4.55	.26	.057	.150	.039	.59	.22	2.96	3.48	6.17E-02
90 percentile	32.82	66.9	4.66	.53	.116	.293	.082	1.02	.46	4.12	6.29	1.05E-01
Maximum value	66.80	90.9	5.05	1.23	.241	.332	.176	1.45	.87	7.59	7.57	2.04E-01
Volume-weighted mean	NA	29.1	4.28	.17	.033	.064	.025	.35	.16	1.61	2.81	5.24E-02
Arithmetic mean	16.23	30.9	4.36	.26	.053	.101	.035	.43	.20	2.10	3.08	5.29E-02
No. of samples	53	35	35	35	35	35	35	35	35	35	35	35
Total load, g/m2	NA	NA	NA	0.100	0.020	0.039	0.015	0.211	0.095	0.973	1.706	3.2E-02
Maximum interval load, g/m2	NA	NA	NA	.010	.002	.006	.003	.026	.020	.094	0.238	4.8E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.11	-0.03	-.48	-.51	-.43	-.35	-.19	-.42	-.38	-.20	0.03
P-level		.349	.776	.000	.000	.000	.003	.105	.000	.001	.091	.776



Percentiles of volume-weighted mean concentrations for site OH71, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site OH71.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site OH71.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

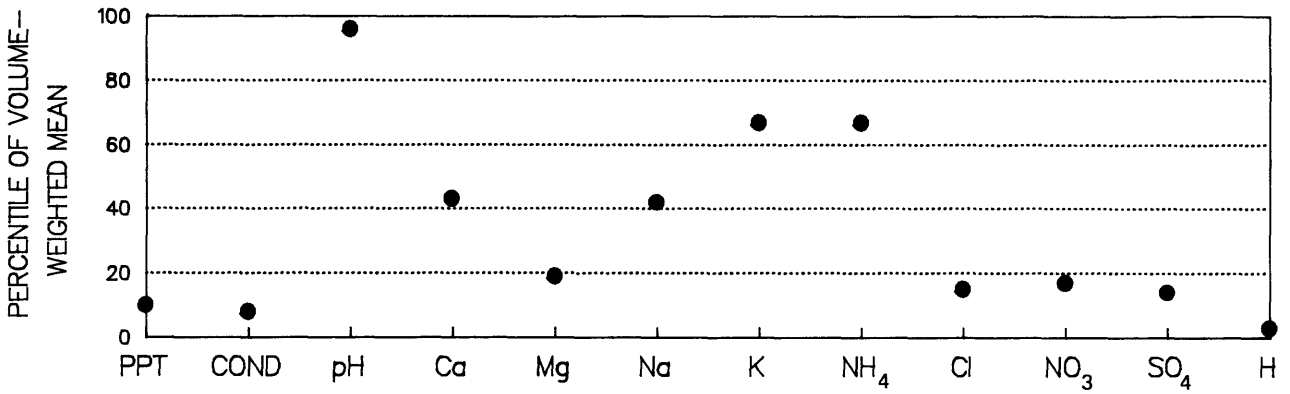
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Vines Hill, Oregon — Latitude: 43°53'57" Longitude: 117°25'37"
CAL number: OR11 — Map ID number: 83
ADS number: 027a00
Station altitude above mean sea level, in meters: 904
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 49 (378)
-- When ppt occurred: 44 (343)
-- When ppt did not occur: 5 (35)
-- When sample volume was substituted for missing rain gage: 2 (14)
-- With chemical samples: 30 (241)

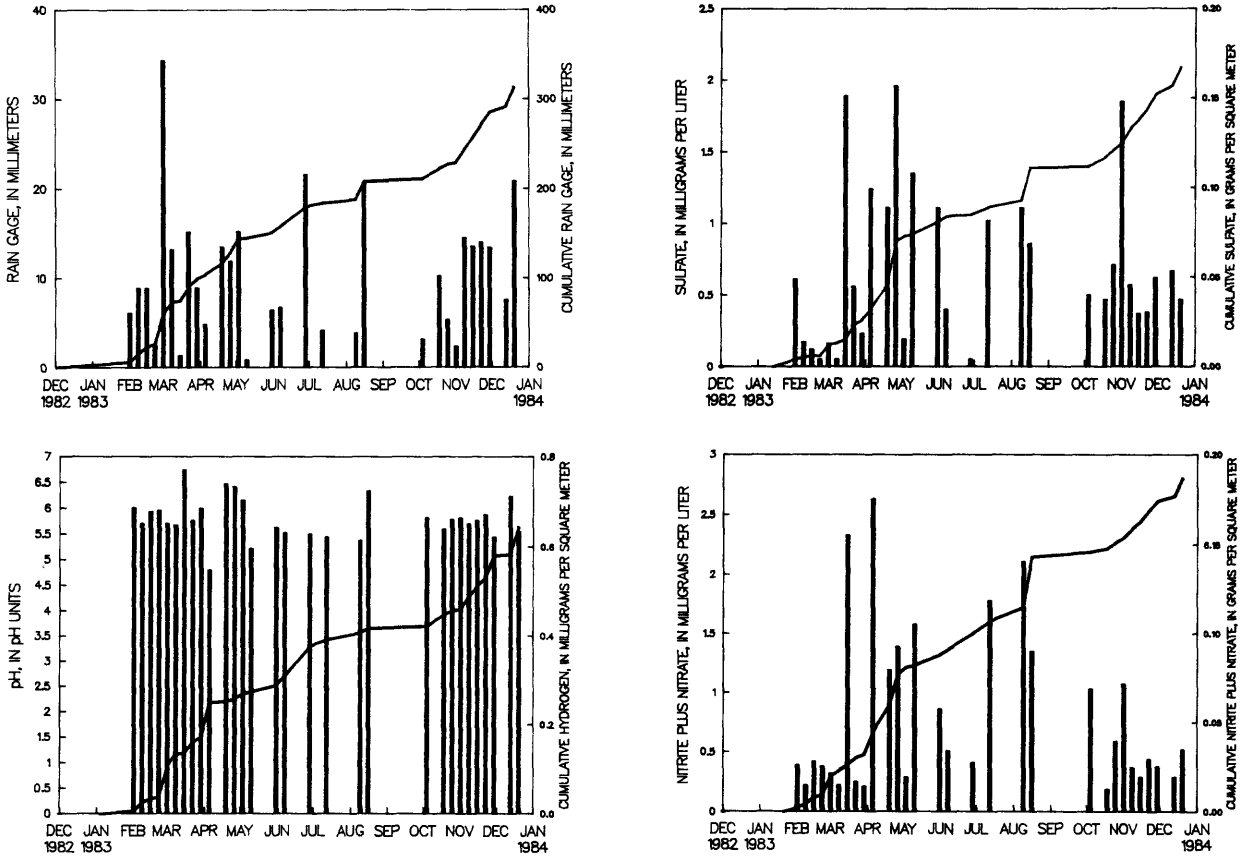
Station summary period: 12/28/1982 to 01/10/1984
Length of summary period: 49 sampling intervals (378 days)
Percent summary period with ppt measurements: 101.9
Percent summary period with chemical samples or no ppt: 74.4
Percent of total measured ppt with chemical samples: 81.0
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 95.9

Total measured ppt, in mm: 386.8

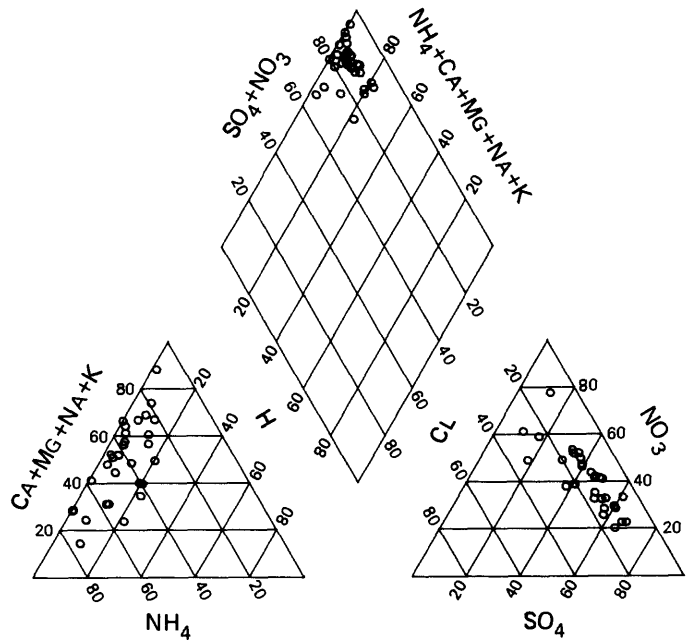
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.1	4.79	0.02	0.005	0.017	0.002	0.05	0.03	0.19	0.05	1.82E-04
10 percentile	.00	2.8	5.38	.04	.009	.026	.009	.07	.05	.22	.06	3.97E-04
25 percentile	.30	3.7	5.53	.06	.014	.033	.014	.11	.07	.29	.22	1.02E-03
50 percentile	5.30	5.0	5.76	.13	.028	.076	.031	.22	.09	.43	.56	1.74E-03
75 percentile	13.50	9.8	5.99	.29	.050	.185	.066	.33	.23	1.23	1.11	2.92E-03
90 percentile	20.80	14.6	6.40	.44	.084	.369	.115	.94	.38	2.08	1.80	4.20E-03
Maximum value	34.30	23.0	6.74	.48	.111	2.110	.230	1.10	.70	2.63	1.96	1.62E-02
Volume-weighted mean	NA	5.7	5.69	.13	.027	.088	.035	.28	.11	.60	.53	2.06E-03
Arithmetic mean	7.89	7.1	5.79	.18	.037	.186	.049	.31	.16	.80	.69	2.42E-03
No. of samples	49	30	30	30	30	30	30	30	30	30	30	30
Total load, g/m2	NA	NA	NA	0.039	0.008	0.028	0.011	0.088	0.033	0.187	0.167	6.4E-04
Maximum interval load, g/m2	NA	NA	NA	.006	.001	.003	.002	.014	.005	.028	.023	7.8E-05
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.35	0.05	-.51	-.50	-.48	-.36	-.19	-.55	-.32	-.35	-0.05
P-level		.008	.681	.000	.000	.000	.006	.143	.000	.013	.008	.681



Percentiles of volume-weighted mean concentrations for site OR11, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site OR11.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site OR11.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

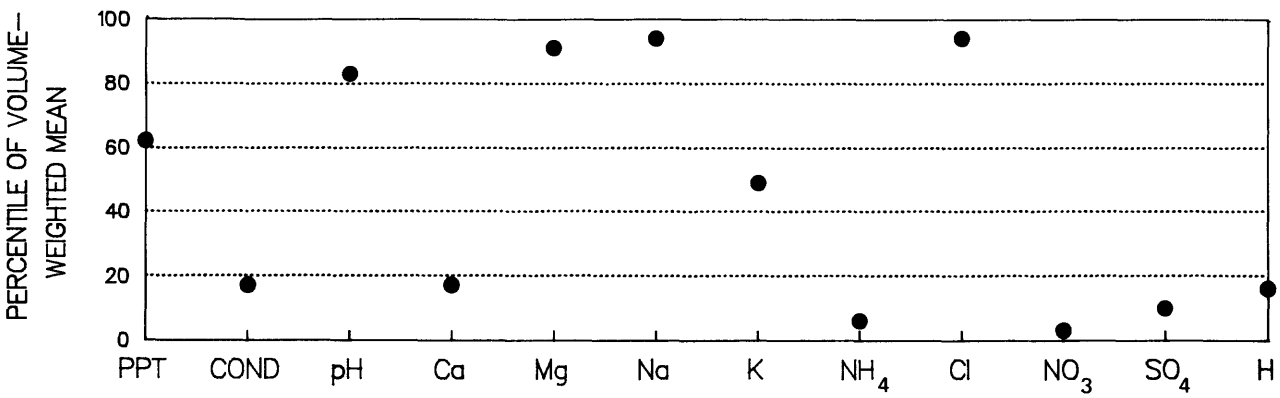
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Composited from stations 060a00 and 366a00 Latitude: 44°38' Longitude: 123°12'
CAL number: OR97+OR99 Map ID number: 84
ADS numbers: 060a00 and 366a00
Station altitude above mean sea level, in meters: 69
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 53 (371)
-- When ppt occurred: 50 (350)
-- When ppt did not occur: 3 (21)
-- When sample volume was substituted for missing rain gage: 16 (112)
-- With chemical samples: 42 (294)

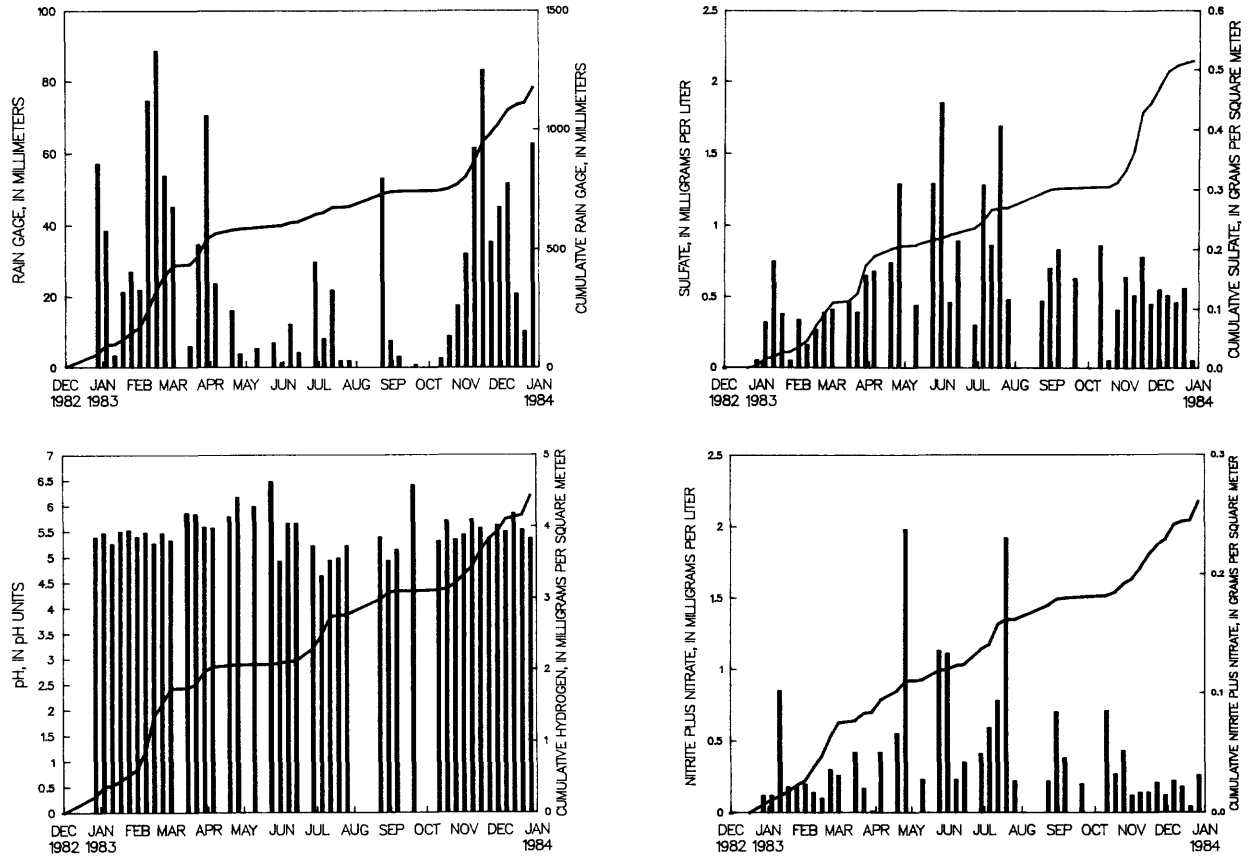
Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 84.9
Percent of total measured ppt with chemical samples: 95.0
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 91.8

Total measured ppt, in mm: 1235.4

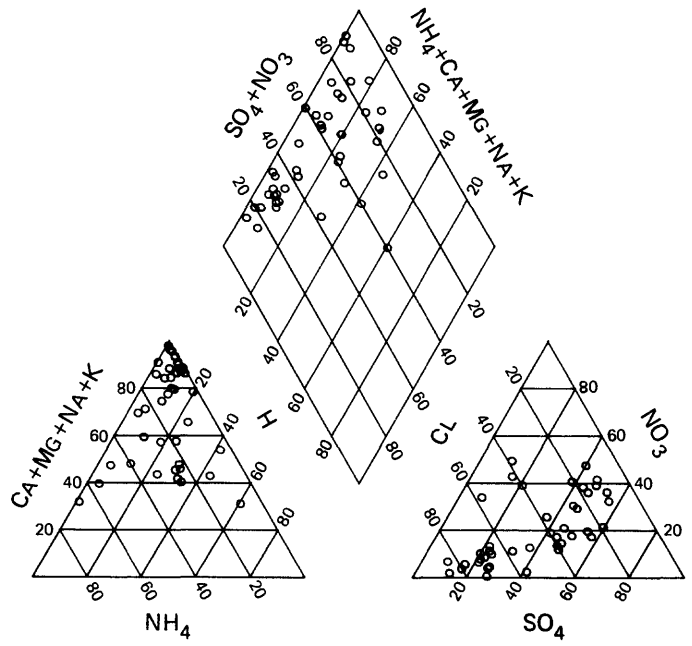
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.4	4.63	0.01	0.004	0.026	0.003	0.01	0.07	0.01	0.05	3.31E-04
10 percentile	.30	3.0	4.95	.03	.013	.054	.009	.01	.11	.12	.08	1.13E-03
25 percentile	2.80	4.8	5.30	.06	.025	.110	.021	.01	.18	.16	.39	2.13E-03
50 percentile	16.00	6.7	5.47	.09	.059	.320	.031	.05	.41	.23	.49	3.35E-03
75 percentile	36.90	8.8	5.67	.15	.089	.564	.054	.10	1.03	.46	.76	5.02E-03
90 percentile	62.22	12.6	5.95	.28	.120	.780	.107	.30	1.39	1.03	1.29	1.12E-02
Maximum value	88.60	20.7	6.48	.86	.252	2.100	.150	.87	3.85	1.98	1.85	2.34E-02
Volume-weighted mean	NA	6.7	5.42	.07	.069	.522	.030	.06	.95	.22	.44	3.78E-03
Arithmetic mean	23.31	7.3	5.49	.14	.064	.393	.043	.10	.67	.41	.60	4.46E-03
No. of samples	53	42	42	42	42	42	42	42	42	42	42	42
Total load, g/m2	NA	NA	NA	0.083	0.081	0.613	0.035	0.065	1.113	0.261	0.515	4.4E-03
Maximum interval load, g/m2	NA	NA	NA	.009	.021	.174	.007	.008	.320	.017	.065	4.8E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.21	0.00	-.61	-.12	.09	-.37	-.21	.14	-.46	-.40	0.00
P-level		.046	.982	.000	.255	.416	.001	.062	.201	.000	.000	.982



Percentiles of volume-weighted mean concentrations for site OR97, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site OR97.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site OR97.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Leading Ridge, Pennsylvania — Latitude: 40°39'32" Longitude: 77°56'10"
CAL number: PA42 — Map ID number: 87
ADS number: 064a00
Station altitude above mean sea level, in meters: 282
Number of sampling intervals (days in parenthesis):

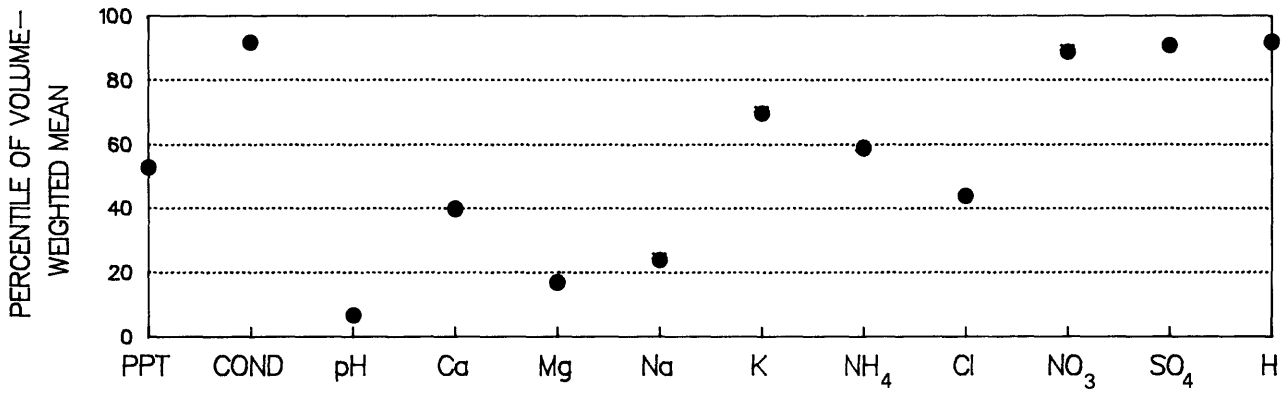
-- With ppt measurements:	53	(371)
-- When ppt occurred:	50	(350)
-- When ppt did not occur:	3	(21)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	46	(322)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)

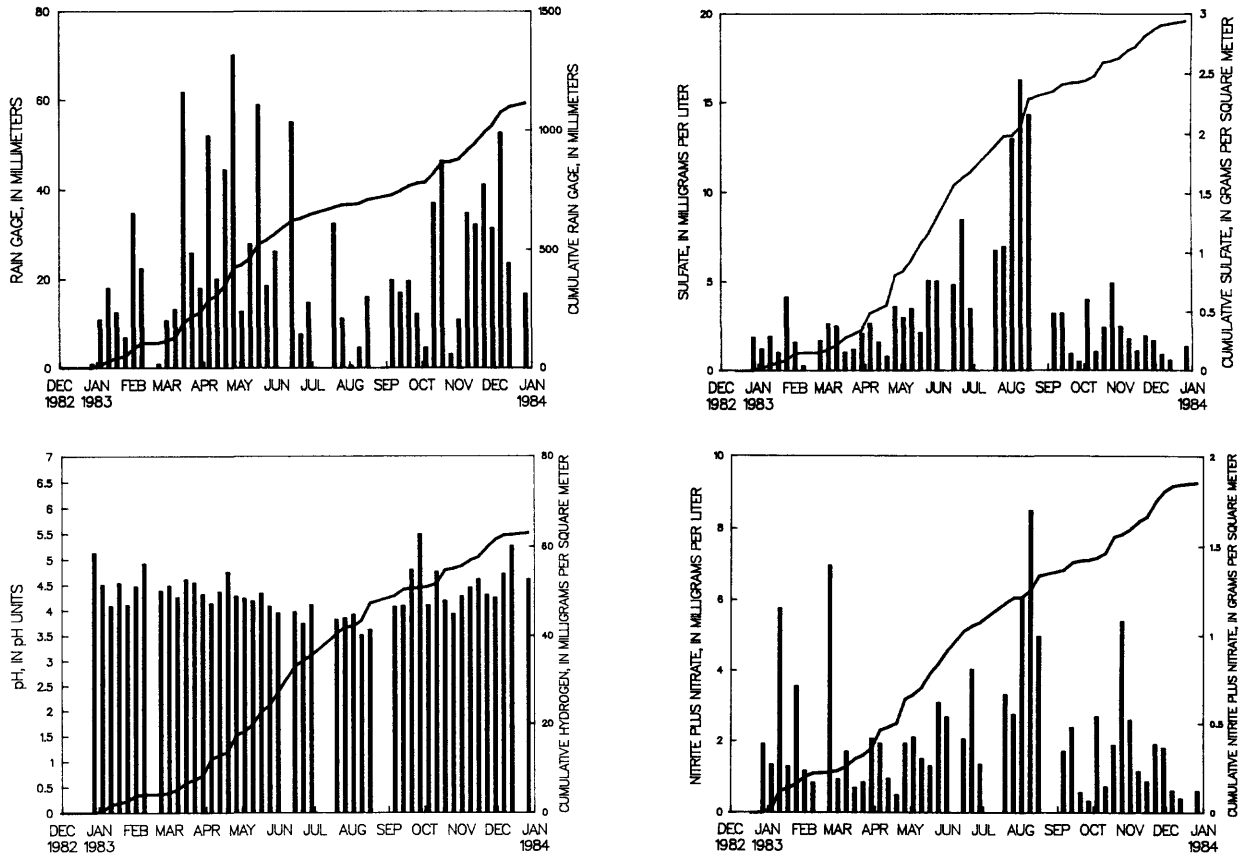
Percent summary period with ppt measurements:	100.0
Percent summary period with chemical samples or no ppt:	92.4
Percent of total measured ppt with chemical samples:	96.0
Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	90.3

Total measured ppt, in mm: 1159.9

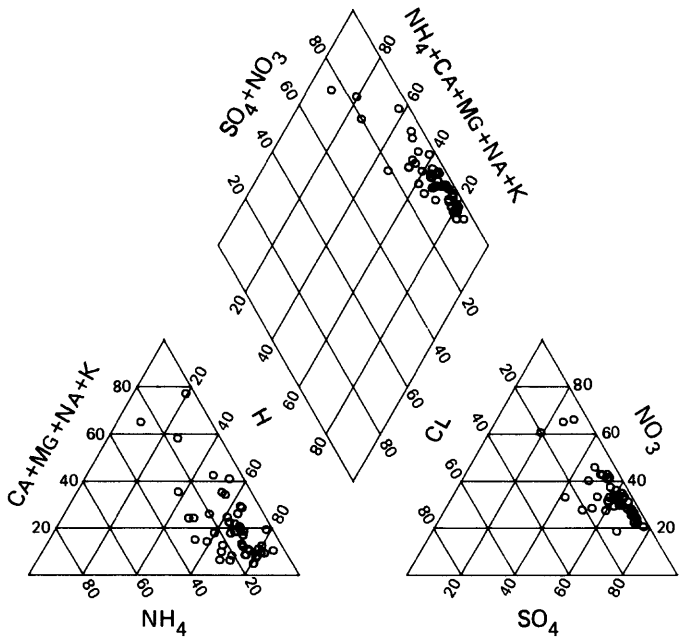
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	3.7	3.51	0.03	0.006	0.019	0.003	0.01	0.04	0.32	0.25	3.24E-03
10 percentile	.62	10.1	3.84	.04	.010	.026	.008	.04	.07	.60	.86	1.47E-02
25 percentile	10.80	14.9	4.09	.07	.015	.037	.016	.09	.11	.91	1.20	2.73E-02
50 percentile	18.00	30.1	4.28	.10	.024	.058	.028	.19	.15	1.86	2.26	5.25E-02
75 percentile	32.40	46.3	4.56	.28	.054	.130	.060	.43	.26	2.71	4.00	8.18E-02
90 percentile	52.52	75.3	4.84	.44	.094	.249	.110	.72	.49	5.52	7.41	1.44E-01
Maximum value	70.10	158.8	5.49	1.26	.235	.810	.164	1.56	1.32	8.50	16.22	3.09E-01
Volume-weighted mean	NA	29.2	4.25	.12	.026	.068	.036	.25	.15	1.67	2.64	5.67E-02
Arithmetic mean	21.88	36.2	4.33	.22	.043	.117	.044	.32	.23	2.26	3.39	6.76E-02
No. of samples	53	46	46	46	46	46	46	46	46	46	46	46
Total load, g/m2	NA	NA	NA	0.136	0.029	0.075	0.040	0.277	0.169	1.854	2.940	6.3E-02
Maximum interval load, g/m2	NA	NA	NA	.020	.004	.008	.011	.041	.013	0.136	0.266	5.9E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.23	0.15	-.49	-.49	-.41	-.33	-.21	-.40	-.31	-.21	-0.15
P-level		.026	.145	.000	.000	.000	.001	.042	.000	.003	.042	.145



Percentiles of volume-weighted mean concentrations for site PA42, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site PA42.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site PA42.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

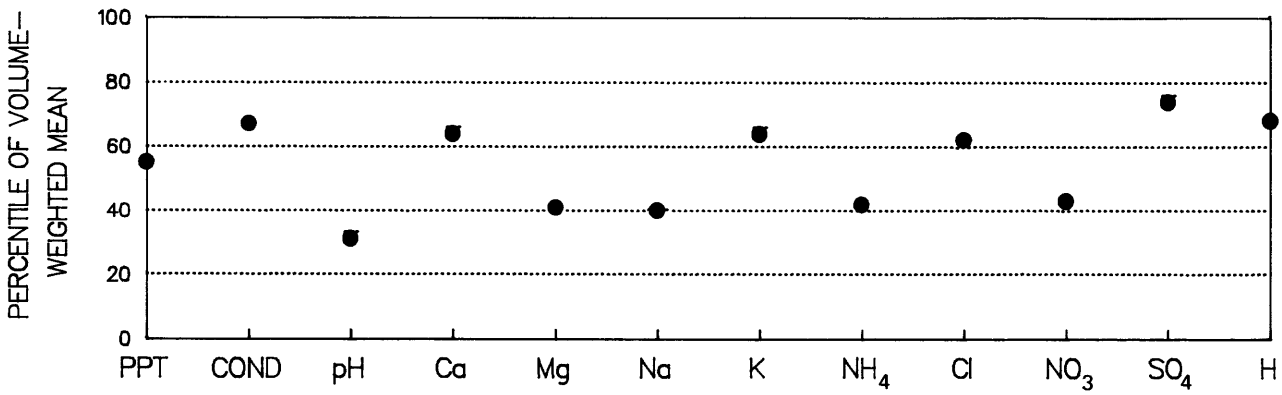
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Walker Branch Watershed, Tennessee — Latitude: 35°57'41" Longitude: 84°17'14"
CAL number: TN00 — Map ID number: 92
ADS number: 171a00
Station altitude above mean sea level, in meters: 341
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 53 (371)
-- When ppt occurred: 49 (343)
-- When ppt did not occur: 4 (28)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 40 (280)

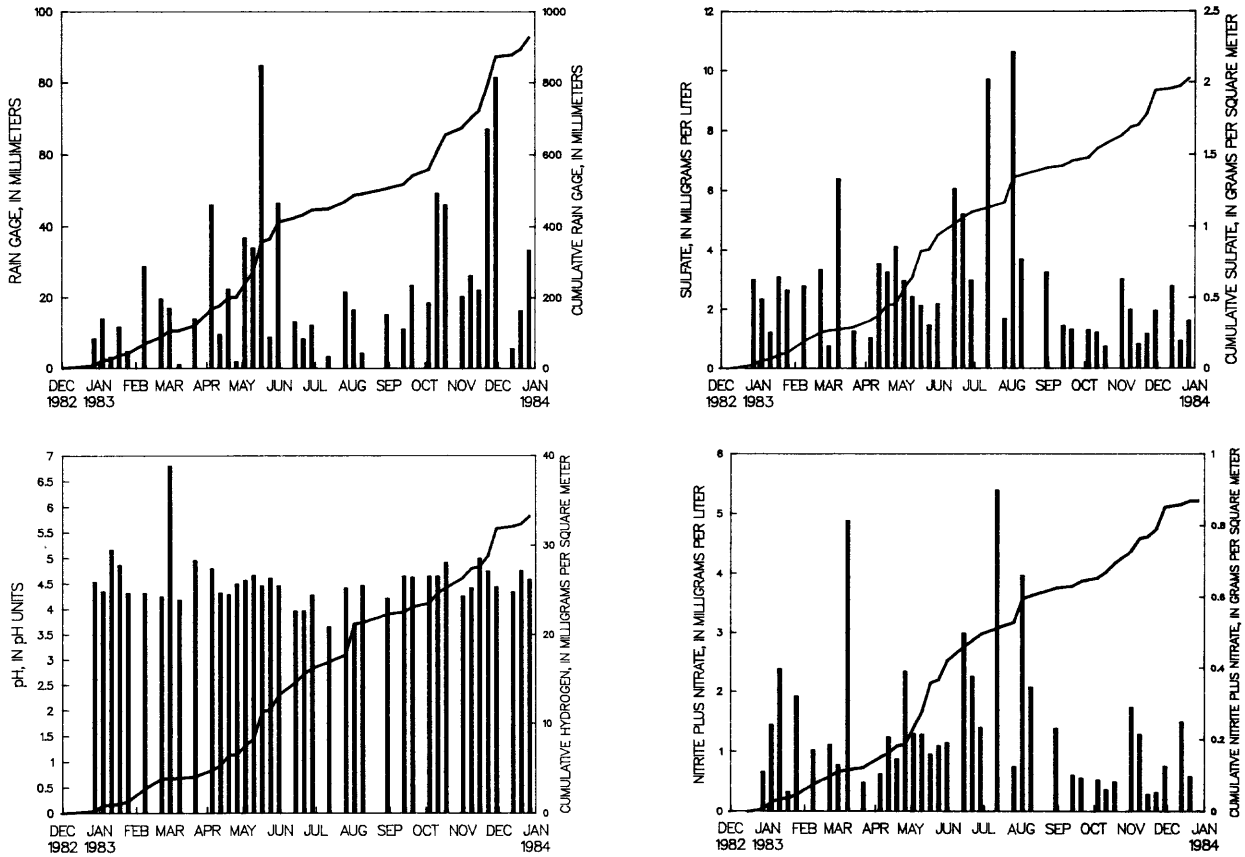
Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 83.0
Percent of total measured ppt with chemical samples: 80.0
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 102.0

Total measured ppt, in mm: 1161.0

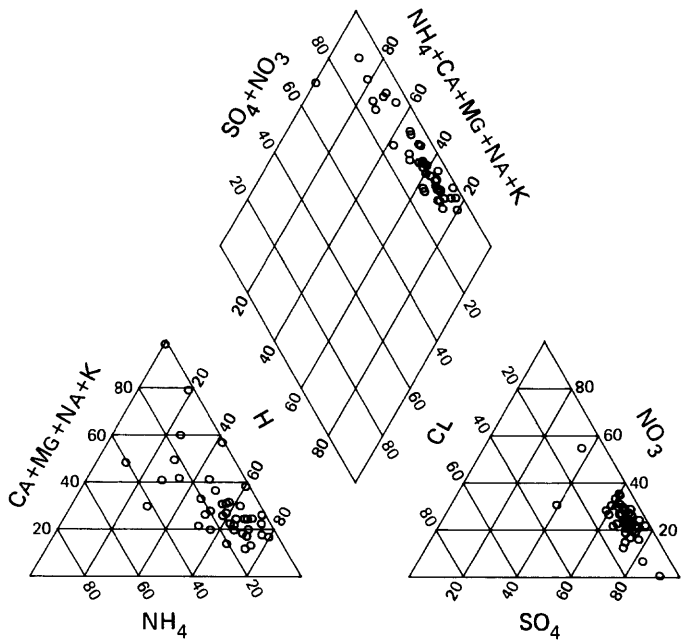
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	6.8	3.65	0.03	0.007	0.017	0.007	0.01	0.07	0.01	0.74	1.58E-04
10 percentile	.04	10.0	3.98	.07	.015	.032	.013	.01	.09	.32	.94	1.13E-02
25 percentile	5.20	12.8	4.29	.13	.021	.042	.019	.05	.12	.58	1.30	2.21E-02
50 percentile	16.30	22.7	4.45	.20	.038	.066	.031	.16	.21	1.10	2.38	3.51E-02
75 percentile	28.60	30.3	4.65	.39	.061	.130	.046	.34	.28	1.67	3.25	5.16E-02
90 percentile	55.66	54.7	4.95	.84	.148	.264	.090	.59	.42	2.93	5.96	1.05E-01
Maximum value	86.90	126.4	6.80	1.08	.180	.510	.270	.88	.64	5.39	10.61	2.24E-01
Volume-weighted mean	NA	21.1	4.44	.19	.034	.086	.034	.18	.19	.94	2.18	3.59E-02
Arithmetic mean	21.91	27.2	4.52	.30	.052	.110	.043	.23	.22	1.37	2.83	4.56E-02
No. of samples	53	40	40	40	40	40	40	40	40	40	40	40
Total load, g/m2	NA	NA	NA	0.172	0.032	0.080	0.032	0.168	0.173	0.869	2.027	3.3E-02
Maximum interval load, g/m2	NA	NA	NA	.014	.003	.015	.005	.024	.024	.081	0.180	3.4E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.28	0.19	-.46	-.51	-.30	-.22	-.23	-.31	-.40	-.33	-0.19
P-level		.012	.080	.000	.000	.007	.045	.038	.005	.000	.003	0.080



Percentiles of volume-weighted mean concentrations for site TN00, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site TN00.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site TN00.

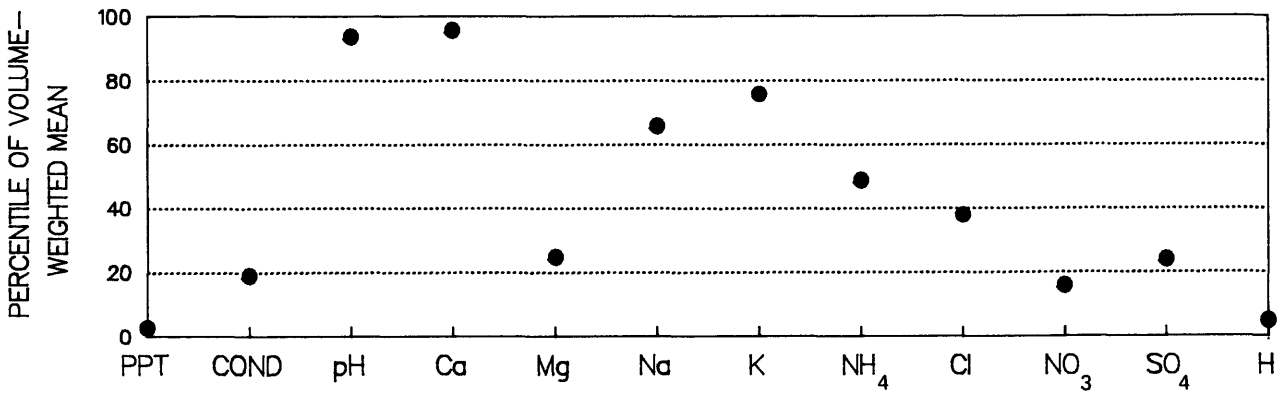
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

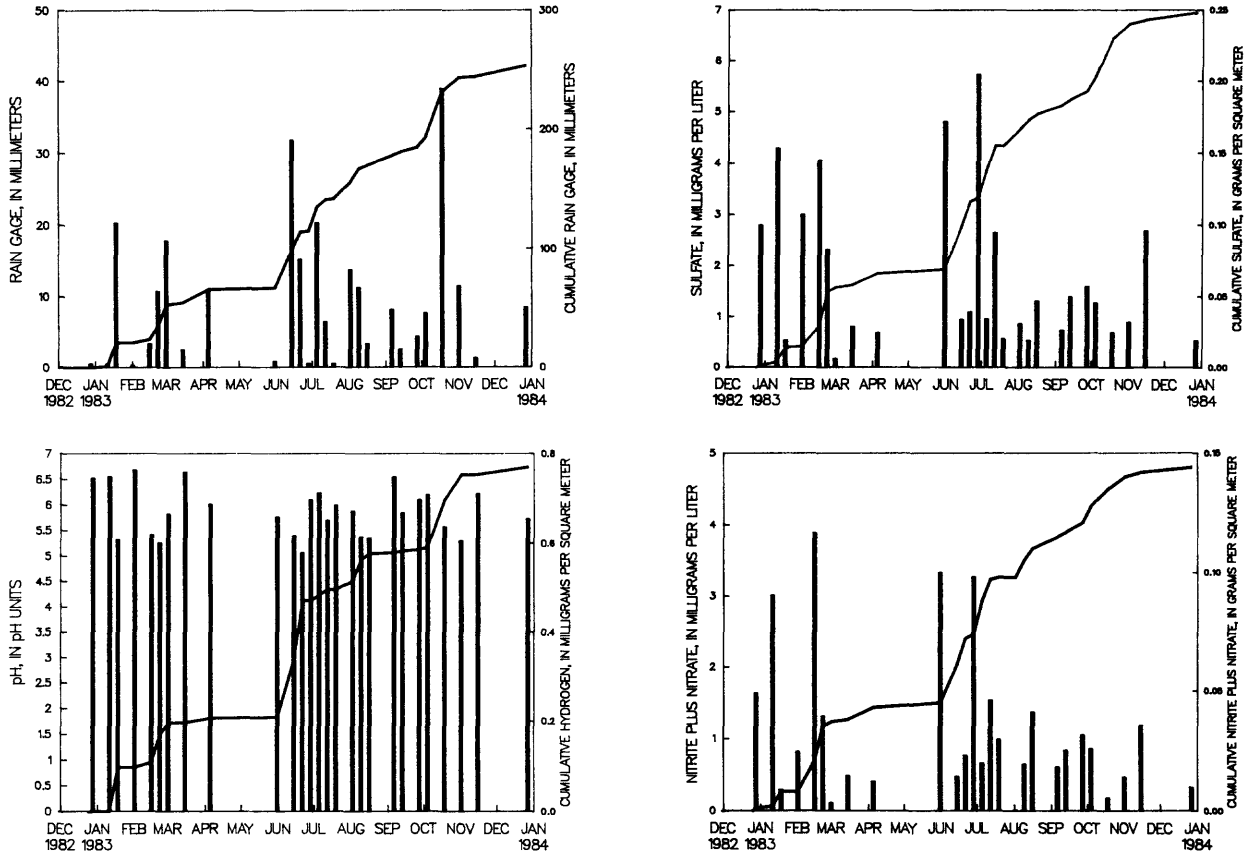
STATION: K-Bar, Texas — Latitude: 29°18'07" Longitude: 103°10'38"
CAL number: TX04 — Map ID number: 94
ADS number: 070a00 — Station summary period: 12/28/1982 to 01/03/1984
Station altitude above mean sea level, in meters: 1056 — Length of summary period: 53 sampling intervals (371 days)

Number of sampling intervals (days in parenthesis):			Percent summary period with ppt measurements:	100.0
-- With ppt measurements:	53	(371)	Percent summary period with chemical samples or no ppt:	83.0
-- When ppt occurred:	36	(252)	Percent of total measured ppt with chemical samples:	88.2
-- When ppt did not occur:	17	(119)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	101.5
-- When sample volume was substituted for missing rain gage:	0	(0)		
-- With chemical samples:	27	(189)	Total measured ppt, in mm: 287.0	

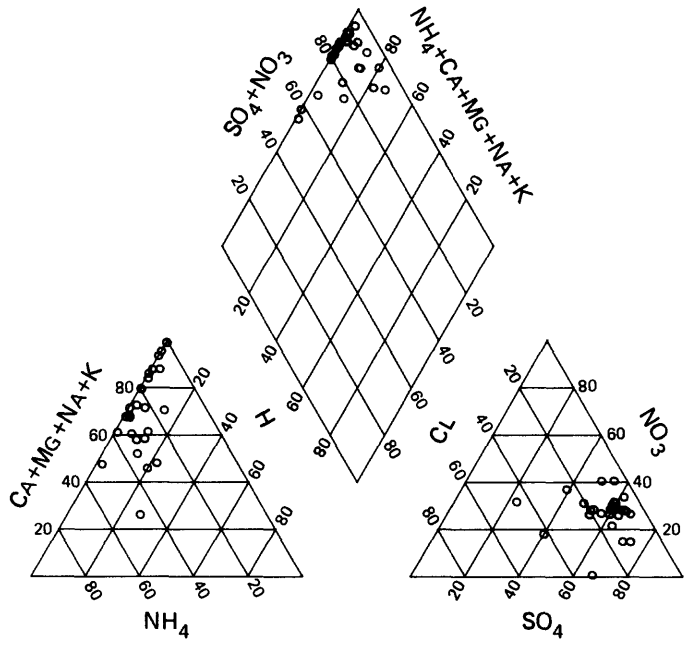
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potessium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrates NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.3	5.06	0.05	0.008	0.031	0.007	0.01	0.04	0.01	0.17	2.09E-04
10 percentile	.00	3.6	5.29	.12	.016	.037	.009	.05	.06	.17	.53	2.71E-04
25 percentile	.00	5.0	5.39	.30	.022	.064	.031	.12	.09	.47	.69	6.03E-04
50 percentile	.50	10.0	5.84	.72	.044	.177	.055	.27	.21	.82	1.09	1.45E-03
75 percentile	8.25	15.3	6.22	1.23	.117	.499	.120	.42	.45	1.37	2.68	4.07E-03
90 percentile	19.30	36.2	6.57	2.33	.245	1.303	.177	.82	1.00	3.28	4.39	5.11E-03
Maximum value	38.90	57.7	6.68	4.09	.355	8.227	.594	1.53	2.16	3.89	5.72	8.71E-03
Volume-weighted mean	NA	7.1	5.52	.46	.031	.132	.039	.21	.14	0.57	.98	3.04E-03
Arithmetic mean	5.42	14.2	5.87	.97	.081	.649	.091	.34	.36	1.13	1.77	2.23E-03
No. of samples	53	27	27	27	27	27	27	27	27	27	27	27
Total load, g/m2	NA	NA	NA	0.118	0.008	0.033	0.010	0.054	0.036	0.144	0.248	7.7E-04
Maximum interval load, g/m2	NA	NA	NA	.024	.001	.008	.001	.005	.005	.015	.030	1.3E-04
Correletion with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.60	-0.39	-.59	-.70	-.71	-.62	-.29	-.58	-.51	-.49	0.39
P-level		.000	.005	.000	.000	.000	.000	.037	.000	.000	.000	.005



Percentiles of volume-weighted mean concentrations for site TX04, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site TX04.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site TX04.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

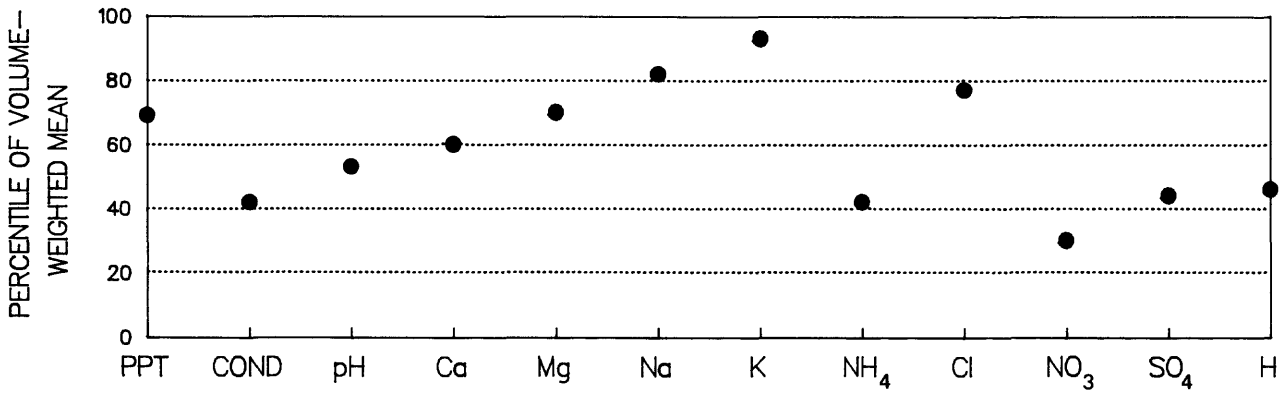
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Forest Seed Center, Texas — Latitude: 31°33'38" Longitude: 94°51'39"
CAL number: TX38 — Map ID number: 95
ADS number: 254a00
Station altitude above mean sea level, in meters: 84
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 54 (371)
-- When ppt occurred: 48 (329)
-- When ppt did not occur: 6 (42)
-- When sample volume was substituted for missing rain gage: 1 (7)
-- With chemical samples: 37 (259)

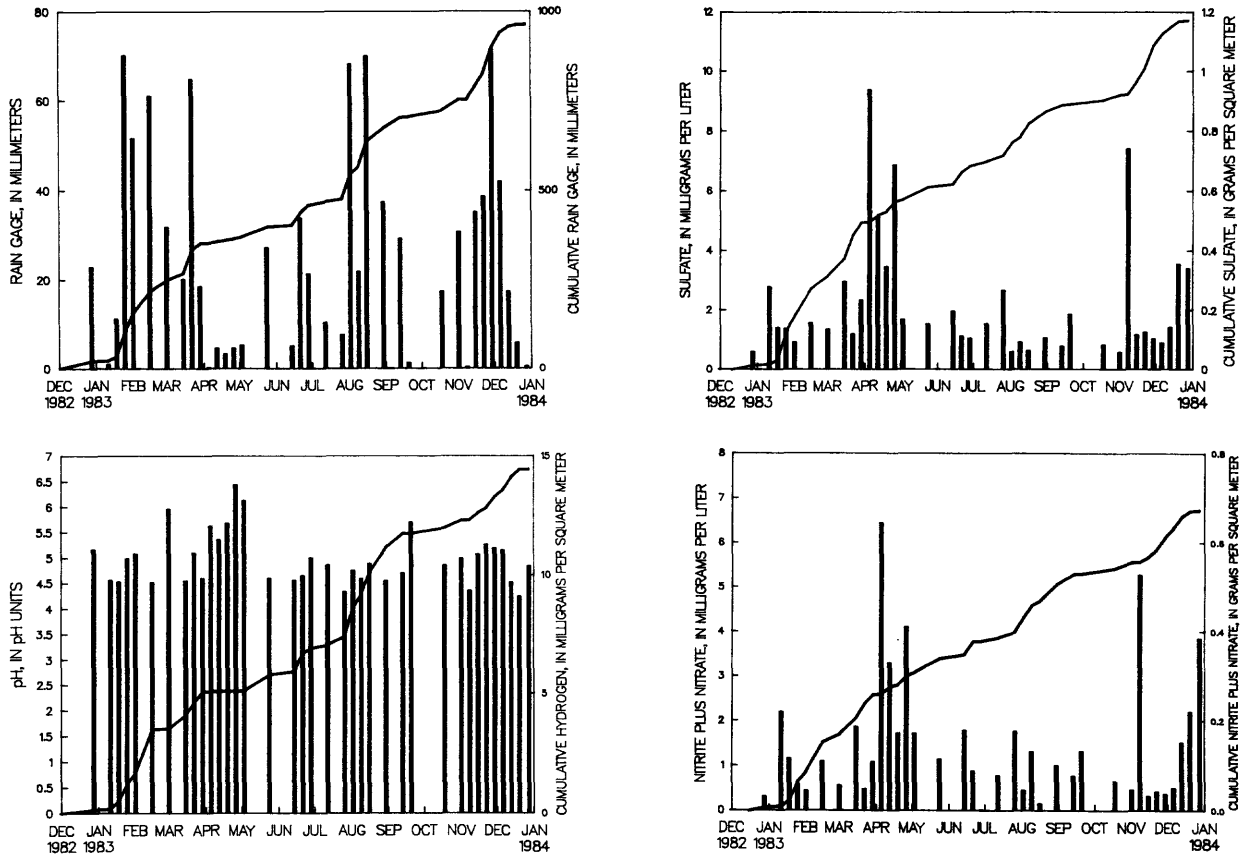
Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 54 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 81.1
Percent of total measured ppt with chemical samples: 71.8
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 99.1

Total measured ppt, in mm: 1341.4

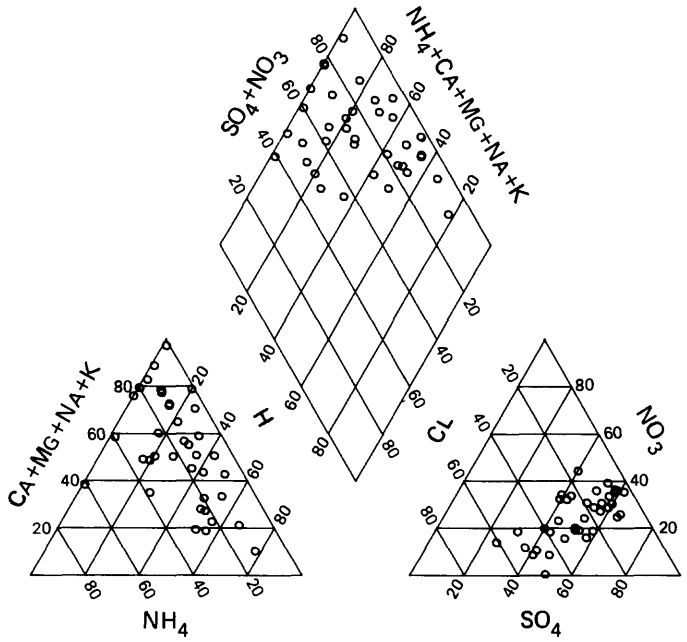
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	4.6	4.24	0.02	0.006	0.017	0.005	0.01	0.05	0.01	0.58	3.63E-04
10 percentile	.00	7.7	4.49	.06	.016	.071	.019	.04	.09	.32	.62	1.82E-03
25 percentile	.88	10.3	4.56	.09	.032	.178	.030	.10	.29	.47	.97	6.61E-03
50 percentile	19.30	15.5	4.86	.20	.058	.344	.049	.19	.44	1.08	1.41	1.38E-02
75 percentile	37.62	22.6	5.18	.44	.101	.591	.118	.36	1.03	1.77	2.72	2.75E-02
90 percentile	69.00	38.7	5.75	1.03	.332	1.694	.348	1.31	2.43	3.90	5.48	3.31E-02
Maximum value	99.80	70.6	6.44	4.40	.385	2.537	1.157	1.76	5.27	6.44	9.36	5.75E-02
Volume-weighted mean	NA	12.0	4.82	.18	.047	.297	.047	.18	.49	.70	1.22	1.50E-02
Arithmetic mean	24.84	19.3	4.97	.49	.099	.533	.135	.36	.88	1.46	2.17	1.72E-02
No. of samples	54	37	37	37	37	37	37	37	37	37	37	37
Total load, g/m2	NA	NA	NA	0.177	0.045	0.286	0.045	0.175	0.474	0.673	1.171	1.4E-02
Maximum interval load, g/m2	NA	NA	NA	.022	.004	.028	.005	.018	.044	.066	.096	1.8E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.62	0.07	-.53	-.52	-.32	-.57	-.30	-.29	-.62	-.55	-0.07
P-level		.000	.530	.000	.000	.006	.000	.009	.012	.000	.000	.530



Percentiles of volume-weighted mean concentrations for site TX38, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site TX38.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site TX38.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

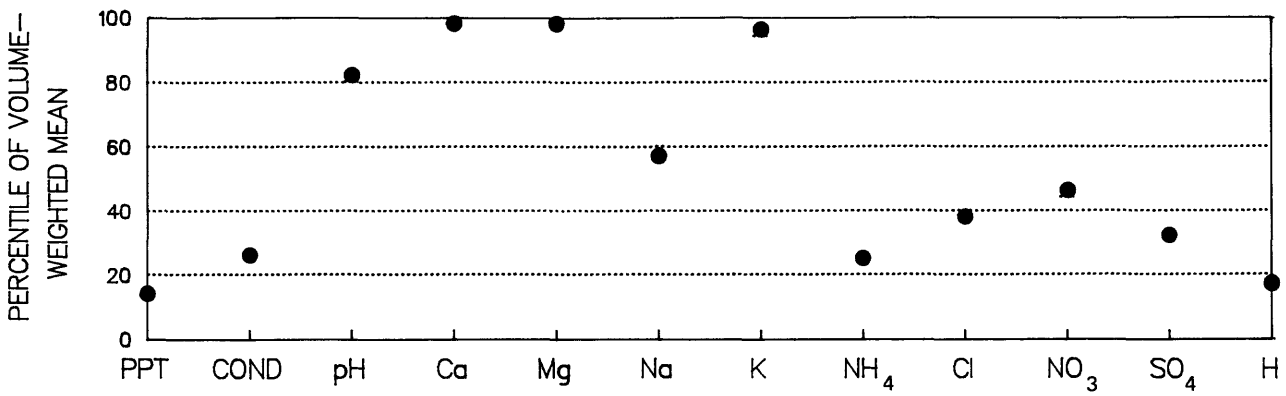
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Cedar Mountain, Utah — Latitude: 39°10'15" Longitude: 110°37'05"
CAL number: UT02 — Map ID number: 98
ADS number: 069a00
Station altitude above mean sea level, in meters: 2356
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 33 (384)
-- When ppt occurred: 31 (370)
-- When ppt did not occur: 2 (14)
-- When sample volume was substituted for missing rain gage: 3 (34)
-- With chemical samples: 23 (265)

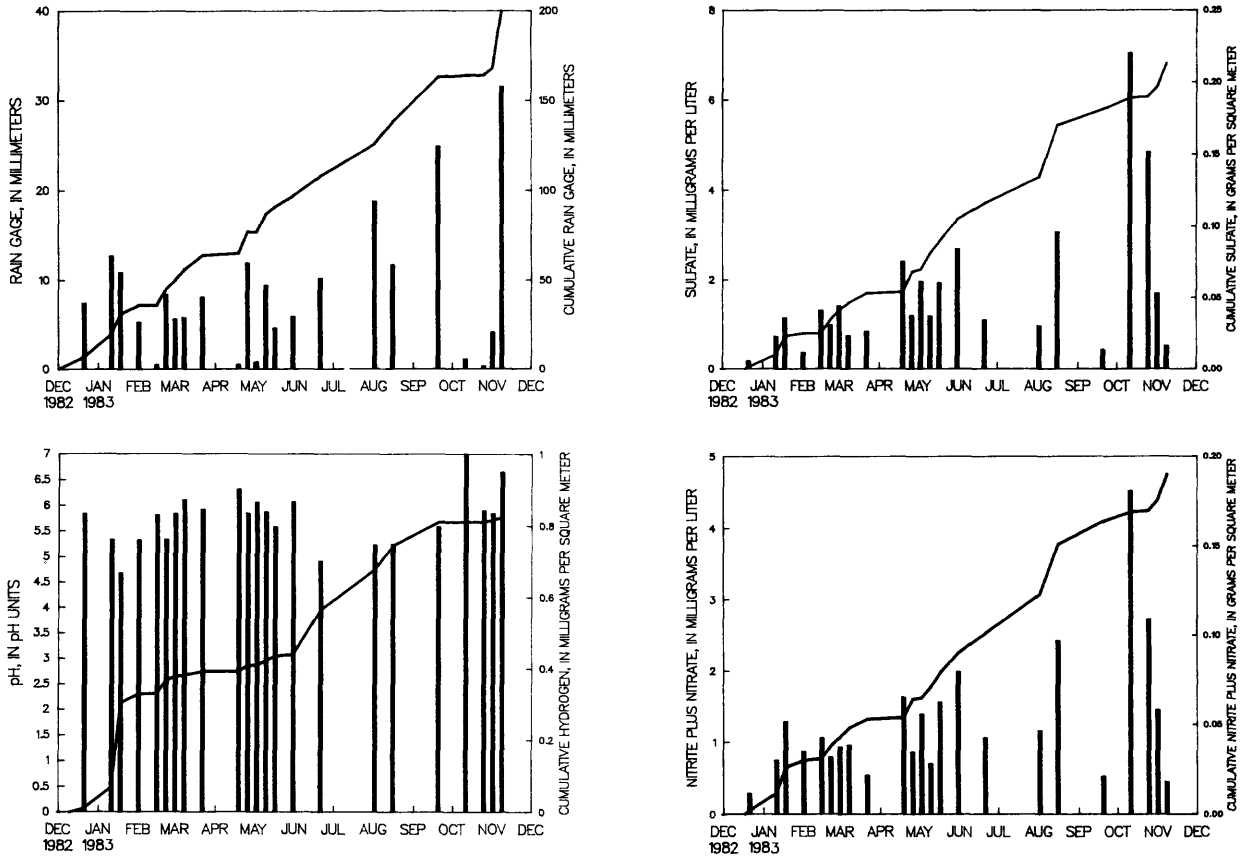
Station summary period: 12/21/1982 to 01/17/1984
Length of summary period: 35 sampling intervals (392 days)
Percent summary period with ppt measurements: 103.5
Percent summary period with chemical samples or no ppt: 75.2
Percent of total measured ppt with chemical samples: 72.2
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 82.4

Total measured ppt, in mm: 277.4

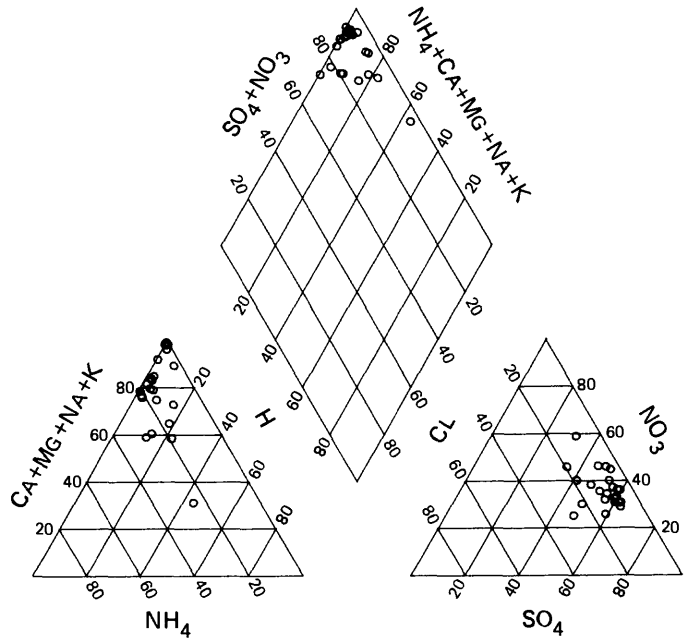
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	3.1	4.67	0.19	0.036	0.028	0.010	0.01	0.06	0.29	0.17	7.76E-05
10 percentile	.12	5.3	5.03	.19	.043	.032	.010	.01	.07	.48	.38	3.30E-04
25 percentile	.95	5.6	5.33	.31	.049	.068	.016	.06	.08	.75	.74	8.71E-04
50 percsntile	7.40	9.4	5.83	.57	.092	.120	.044	.17	.14	1.06	1.18	1.48E-03
75 percentile	11.80	14.9	6.06	1.21	.195	.248	.076	.22	.21	1.56	1.96	4.68E-03
90 percentile	21.86	26.7	6.51	2.13	.410	.949	.193	.29	.81	2.60	4.13	9.79E-03
Maximum value	31.50	59.2	7.11	7.88	.514	1.950	.243	.71	1.01	4.52	7.03	2.14E-02
Volume-weighted mean	NA	9.0	5.39	.71	.091	.104	.050	.14	.14	.95	1.06	4.11E-03
Arithmetic mean	8.41	12.9	5.75	1.07	.146	.279	.063	.17	.25	1.30	1.68	3.45E-03
No. of samples	33	23	23	23	23	23	23	23	23	23	23	23
Total load, g/m2	NA	NA	NA	0.142	0.018	0.021	0.010	0.027	0.027	0.190	0.213	8.2E-04
Maximum interval load, g/m2	NA	NA	NA	.042	.003	.002	.002	.004	.003	0.028	0.036	2.3E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.31	-0.29	-.33	-.36	-.51	-.15	.01	-.41	-.38	-.39	0.29
P-level		.042	.057	.028	.016	.001	.328	.937	.007	.010	.010	.057



Percentiles of volume-weighted mean concentrations for site UT02, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site UT02.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site UT02.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

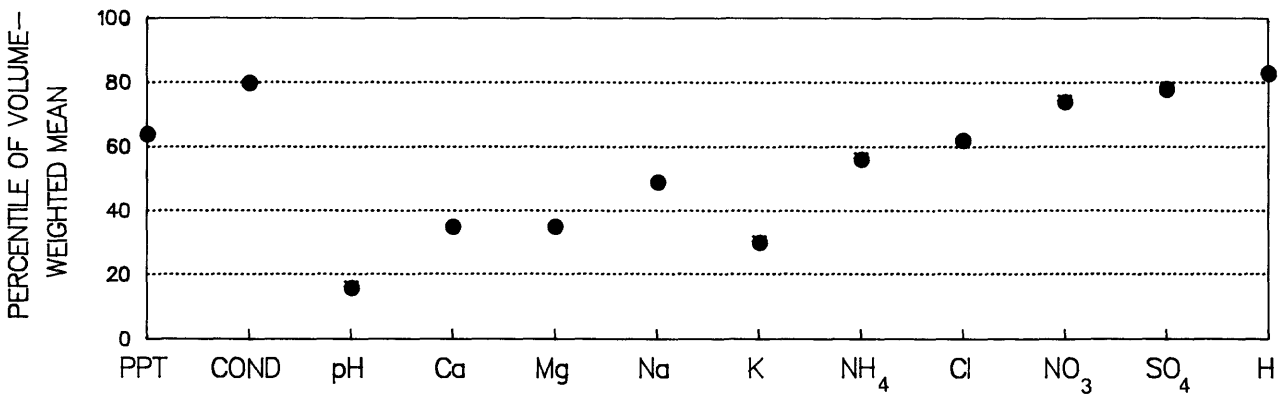
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Bennington, Vermont — Latitude: 42°52'34" Longitude: 73°09'48"
CAL number: VT01 — Map ID number: 100
ADS number: 249a00
Station altitude above mean sea level, in meters: 305
Number of sampling intervals (days in parenthesis):

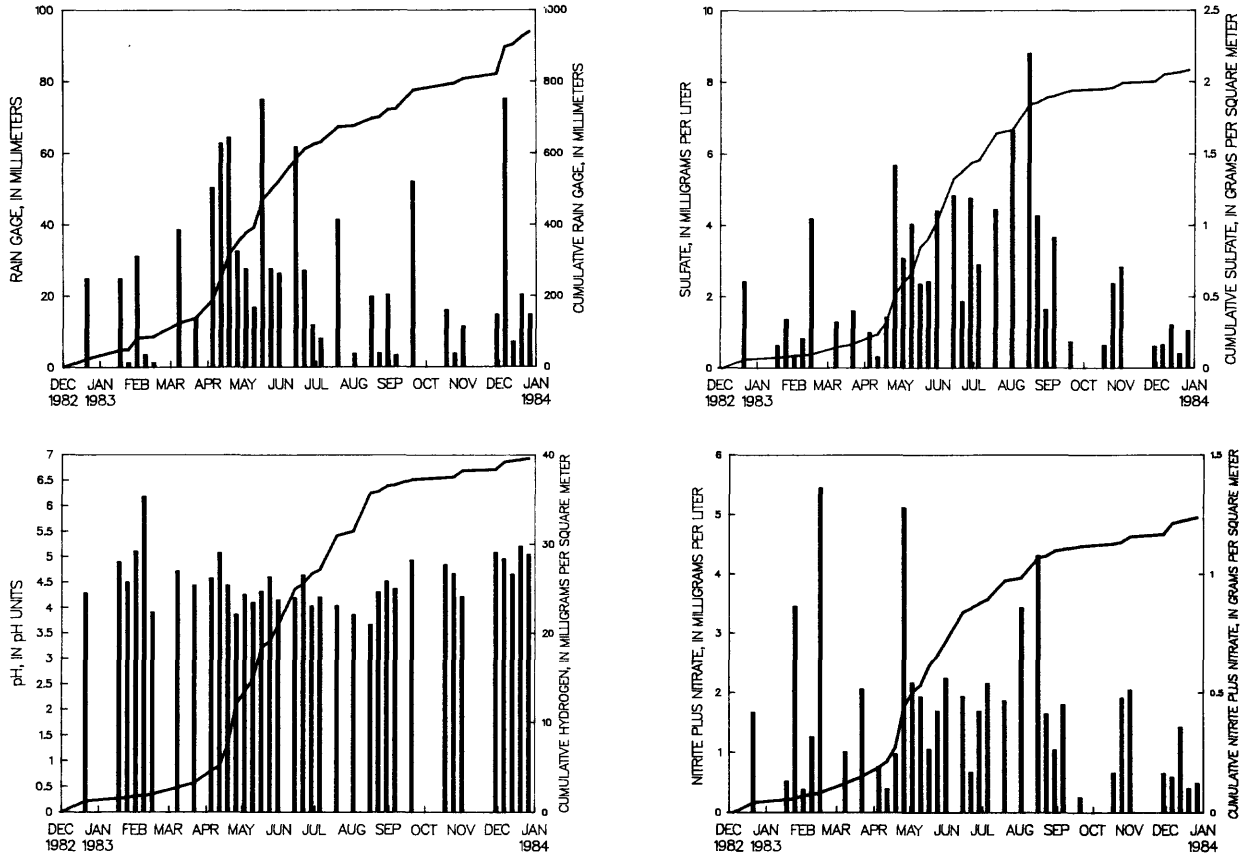
-- With ppt measurements:	52	(378)
-- When ppt occurred:	51	(371)
-- When ppt did not occur:	1	(7)
-- When sample volume was substituted for missing rain gage:	5	(35)
-- With chemical samples:	36	(266)

Station summary period: 12/21/1982 to 01/03/1984
Length of summary period: 52 sampling intervals (378 days)
Percent summary period with ppt measurements: 101.9
Percent summary period with chemical samples or no ppt: 73.6
Percent of total measured ppt with chemical samples: 77.3
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 92.0
Total measured ppt, in mm: 1215.9

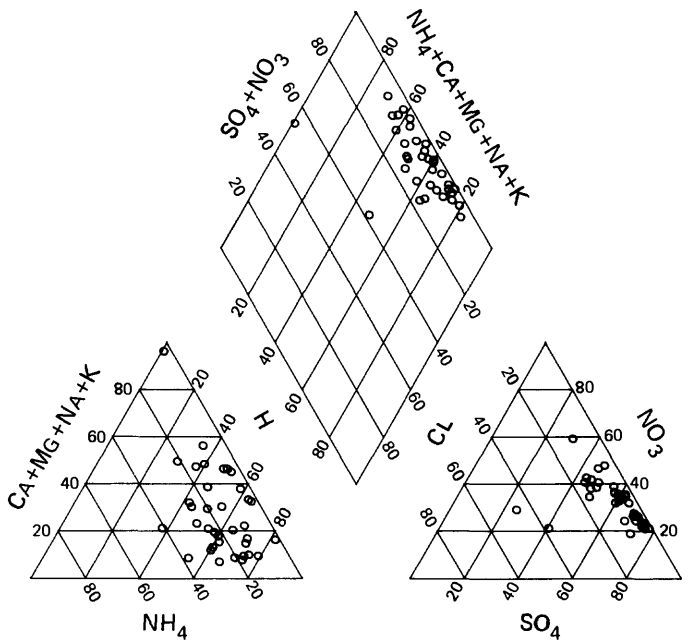
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	4.3	3.67	0.02	0.006	0.014	0.004	0.01	0.05	0.25	0.31	6.61E-04
10 percentile	1.90	6.3	3.89	.04	.012	.027	.006	.01	.06	.40	.55	8.02E-03
25 percentile	7.35	9.6	4.19	.07	.022	.041	.013	.05	.08	.66	.8	1.30E-02
50 percentile	18.00	21.6	4.47	.11	.034	.066	.026	.22	.11	1.66	2.11	3.40E-02
75 percentile	30.32	38.5	4.89	.30	.076	.131	.035	.44	.22	2.06	4.15	6.38E-02
90 percentile	62.40	62.9	5.10	.37	.087	.209	.062	.66	.41	3.71	5.08	1.28E-01
Maximum value	75.20	90.4	6.18	.72	.236	.753	.091	.96	1.15	5.45	8.7	2.14E-01
Volume-weighted mean	NA	23.2	4.38	.11	.033	.096	.026	0.24	0.19	1.32	2.22	4.21E-02
Arithmetic mean	23.38	26.5	4.53	.17	.049	.111	.029	0.28	0.20	1.70	2.55	4.83E-02
No. of samples	52	36	36	36	36	36	36	36	36	36	36	36
Total load, g/m2	NA	NA	NA	0.108	0.031	0.090	0.025	0.227	0.174	1.238	2.084	4.0E-02
Maximum interval load, g/m2	NA	NA	NA	.011	.005	.035	.003	.051	.064	0.166	0.298	4.5E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.14	0.09	-.40	-.41	-.36	-.11	-.17	-.21	-.28	-.14	-0.09
P-level		0.247	0.454	.001	.001	.002	.361	.144	.074	.017	.230	.454



Percentiles of volume-weighted mean concentrations for site VT01, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site VT01.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site VT01.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Olympic National Park, Washington — Latitude: 47°51'36" Longitude: 123°55'57"
CAL number: WA14 — Map ID number: 101
ADS number: 074a00
Station altitude above mean sea level, in meters: 176
Number of sampling intervals (days in parenthesis):

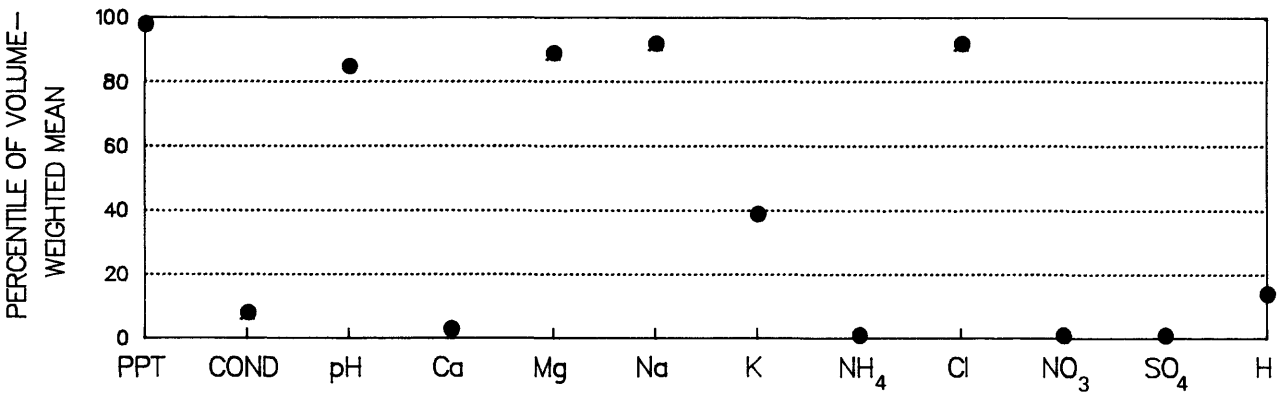
-- With ppt measurements:	58	(371)
-- When ppt occurred:	57	(364)
-- When ppt did not occur:	1	(7)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	46	(292)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 58 sampling intervals (371 days)

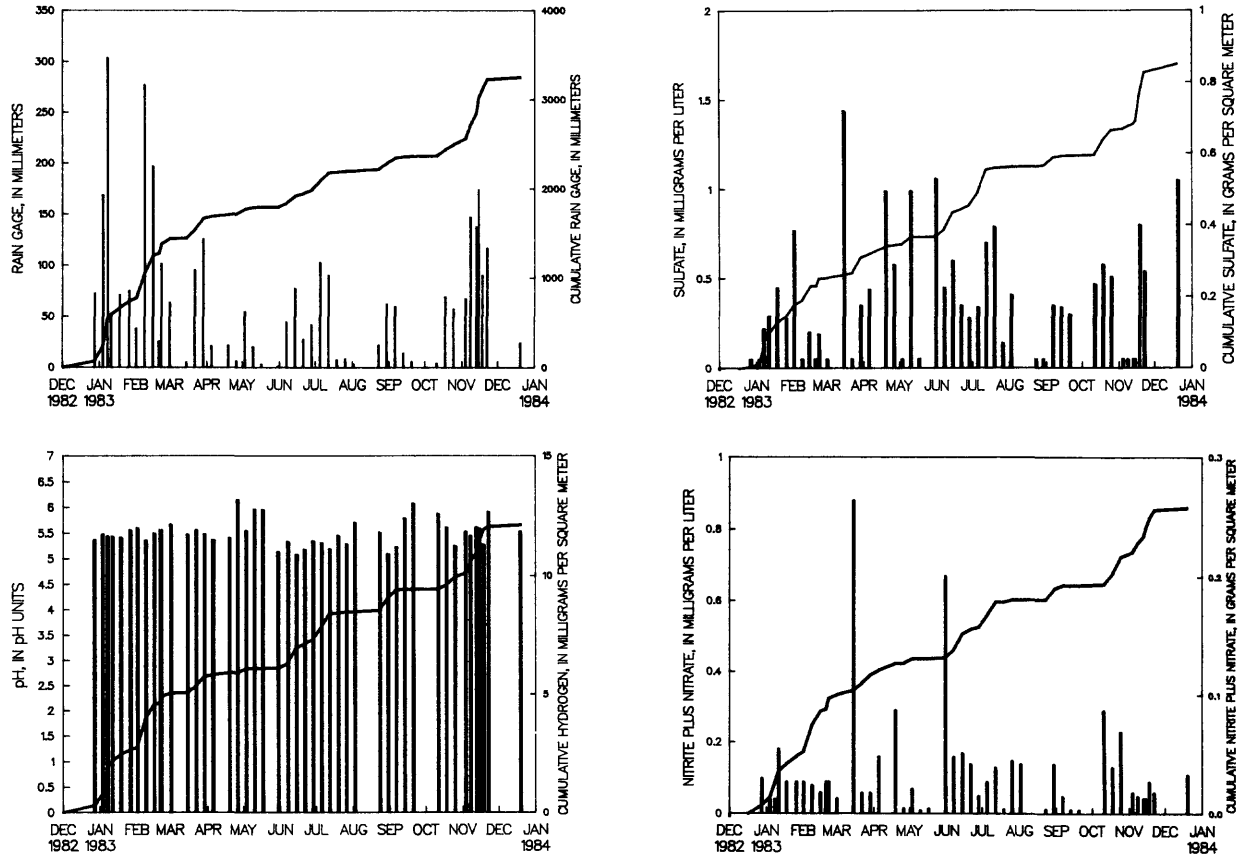
Percent summary period with ppt measurements:	100.0
Percent summary period with chemical samples or no ppt:	80.6
Percent of total measured ppt with chemical samples:	80.2
Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	97.0

Total measured ppt, in mm: 4057.2

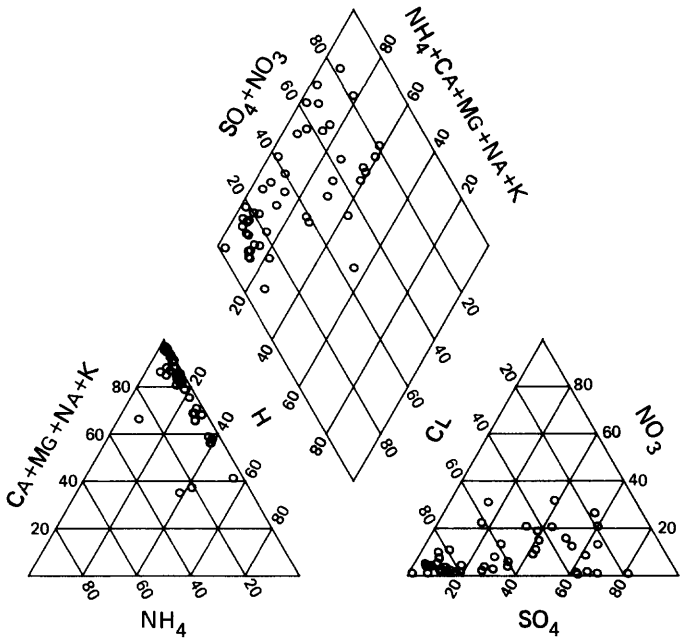
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	1.7	5.08	0.01	0.004	0.036	0.003	0.01	0.05	0.01	0.05	7.08E-04
10 percentile	1.26	2.5	5.19	.02	.014	.063	.008	.01	.11	.01	.05	1.20E-03
25 percentile	11.07	3.6	5.35	.03	.026	.107	.013	.01	.17	.04	.05	2.50E-03
50 percentile	52.05	5.1	5.48	.05	.043	.255	.021	.01	.47	.09	.34	3.31E-03
75 percentile	101.92	8.7	5.60	.09	.096	.629	.044	.01	.98	.14	.58	4.49E-03
90 percentile	175.62	10.7	5.92	.18	.145	1.186	.069	.03	1.99	.25	.99	6.50E-03
Maximum value	303.50	14.8	6.15	.37	.199	1.680	.416	.21	3.11	.88	1.44	8.32E-03
Volume-weighted mean	NA	5.7	5.43	.04	.062	.482	.027	.02	.87	.08	.26	3.73E-03
Arithmetic mean	69.95	6.1	5.51	.08	.063	.428	.044	.02	.74	.12	.39	3.60E-03
No. of samples	58	46	46	46	46	46	46	46	46	46	46	46
Total load, g/m2	NA	NA	NA	0.134	0.200	1.567	0.088	0.049	2.842	0.258	0.851	1.2E-02
Maximum interval load, g/m2	NA	NA	NA	.014	.023	0.188	.008	.009	0.361	.022	.072	1.2E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.05	-0.13	-.59	-.06	.18	-.14	.01	.20	-.17	-.27	0.13
P-level		.656	.218	.000	.563	.083	.169	.909	.049	.097	.009	.218



Percentiles of volume-weighted mean concentrations for site WA14, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site WA14.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site WA14.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

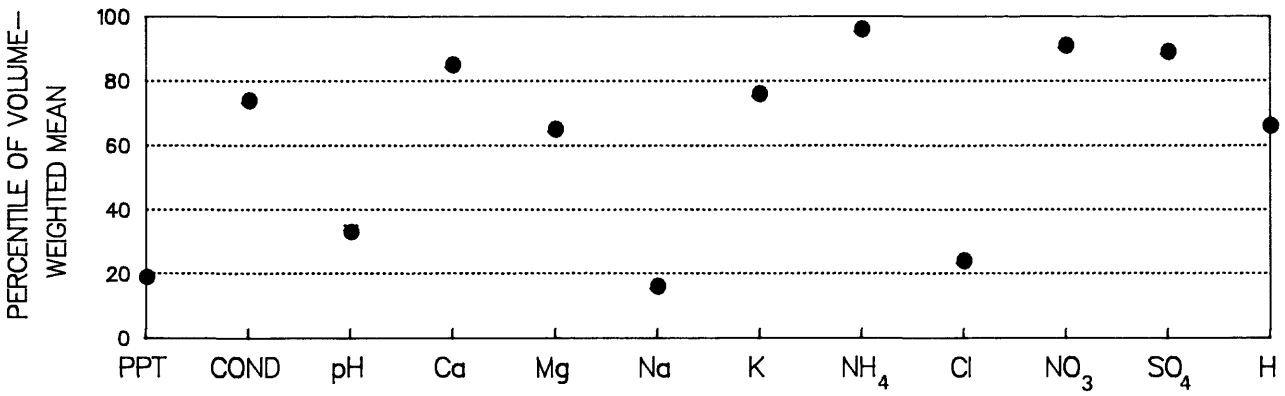
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Lake Dubay, Wisconsin — Latitude: 44°39'53" Longitude: 89°39'08"
CAL number: WI28 — Map ID number: 102
ADS number: 283a00
Station altitude above mean sea level, in meters: 2113
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 53 (369)
-- When ppt occurred: 49 (341)
-- When ppt did not occur: 4 (28)
-- When sample volume was substituted for missing rain gage: 2 (14)
-- With chemical samples: 41 (285)

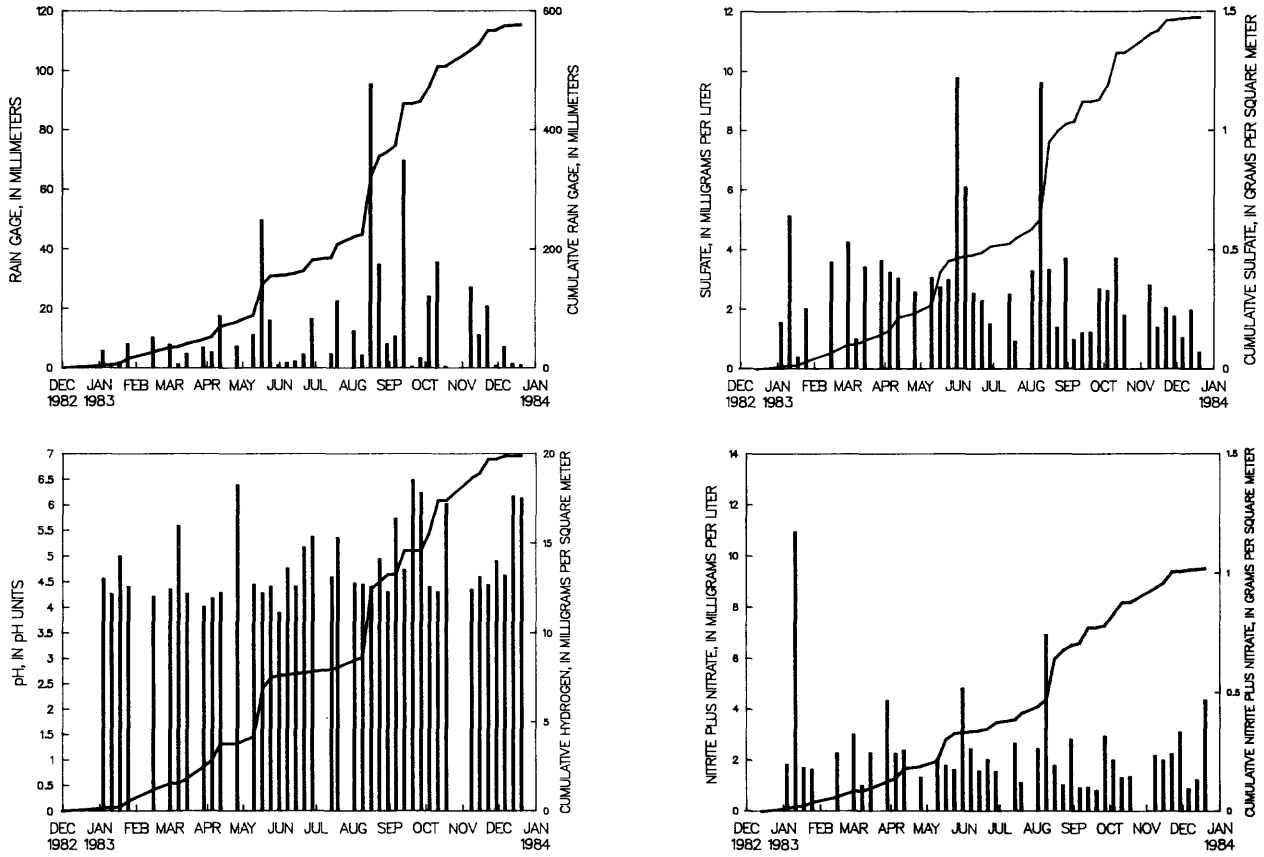
Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 54 sampling intervals (371 days)
Percent summary period with ppt measurements: 99.5
Percent summary period with chemical samples or no ppt: 84.4
Percent of total measured ppt with chemical samples: 90.0
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 95.5

Total measured ppt, in mm: 641.5

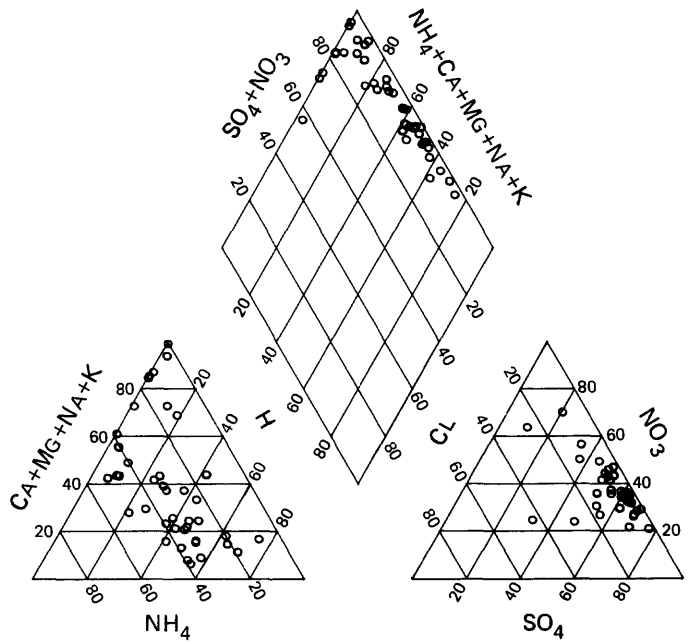
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	7.0	3.89	0.04	0.014	0.017	0.014	0.01	0.03	0.80	0.38	3.31E-04
10 percentile	.30	9.8	4.22	.09	.019	.026	.017	.14	.08	.94	.99	7.02E-04
25 percentile	1.00	14.6	4.31	.16	.031	.056	.025	.25	.11	1.33	1.45	5.61E-03
50 percentile	6.35	24.0	4.47	.34	.049	.107	.056	.48	.14	2.00	2.58	3.39E-02
75 percentile	16.38	30.8	5.26	.67	.152	.168	.128	.67	.28	2.54	3.37	4.85E-02
90 percentile	32.52	47.0	6.15	1.10	.246	.417	.239	1.15	.58	4.36	4.96	6.03E-02
Maximum value	95.50	81.2	6.48	2.63	.421	1.020	.490	2.47	1.02	10.93	9.77	1.29E-01
Volume-weighted mean	NA	22.3	4.46	.29	.046	.063	.039	.51	.12	1.76	2.55	3.44E-02
Arithmetic mean	12.34	25.4	4.82	.49	.098	.170	.094	.58	.26	2.38	2.82	3.18E-02
No. of samples	52	41	41	41	41	41	41	41	41	41	41	41
Total load, g/m2	NA	NA	NA	0.168	0.027	0.036	0.023	0.293	0.070	1.019	1.475	2.0E-02
Maximum interval load, g/m2	NA	NA	NA	.039	.005	.003	.002	.063	.010	0.169	0.318	3.8E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.03	-0.21	-.37	-.50	-.62	-.51	.06	-.61	-.22	.02	0.21
P-level		.770	.053	.001	.000	.000	.000	.566	.000	.048	.884	.053



Percentiles of volume-weighted mean concentrations for site WI28, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site WI28.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site WI28.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

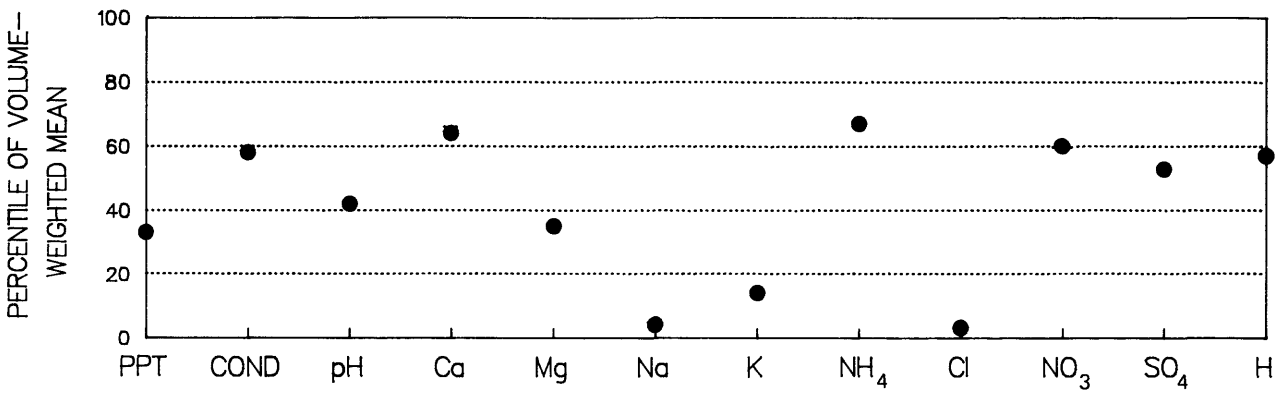
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Trout Lake, Wisconsin — Latitude: 46°03'09" Longitude: 89°39'11"
CAL number: WI36 — Map ID number: 103
ADS number: 076a00
Station altitude above mean sea level, in meters: 501
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 52 (372)
-- When ppt occurred: 51 (365)
-- When ppt did not occur: 1 (7)
-- When sample volume was substituted for missing rain gage: 3 (21)
-- With chemical samplee: 34 (238)

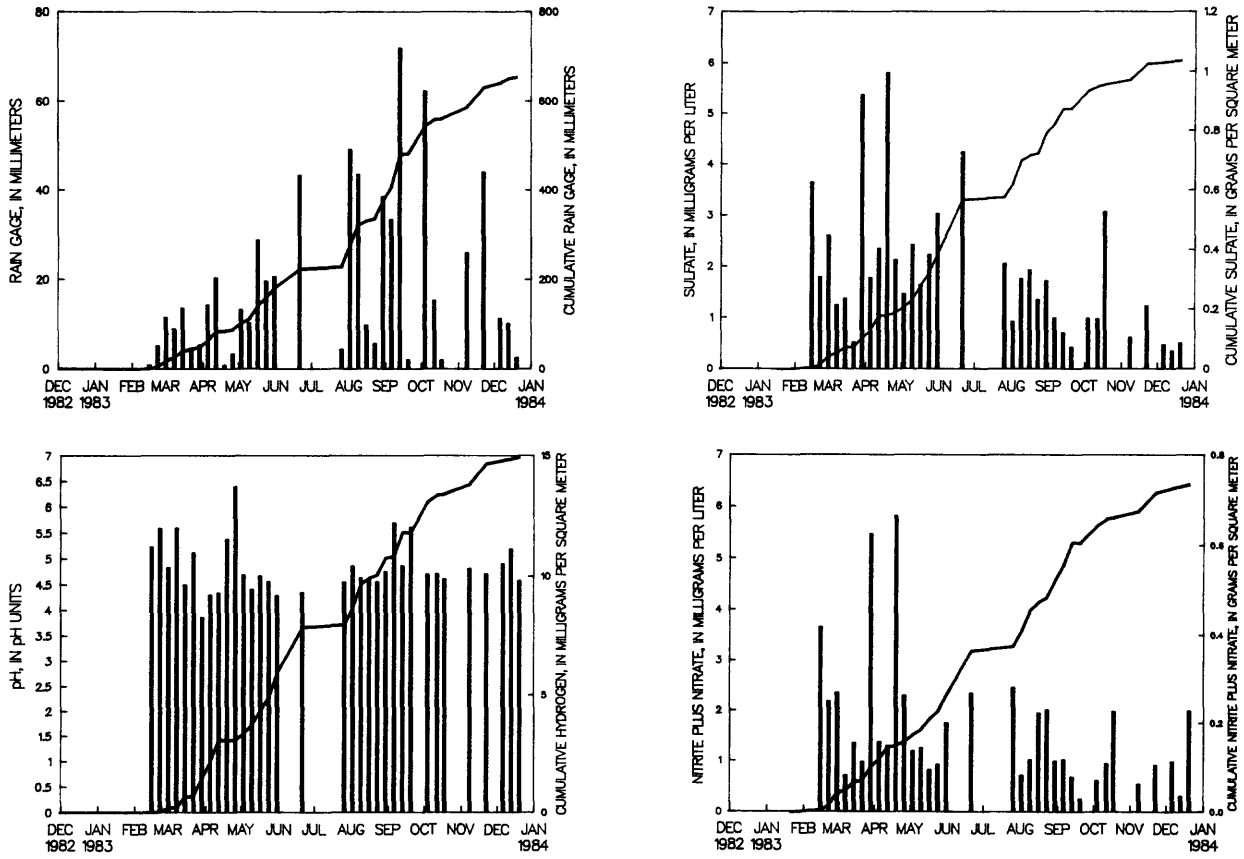
Station summary period: 12/27/1982 to 01/03/1984
Length of summary period: 52 sampling intervels (372 days)
Percent summary period with ppt measurements: 100.3
Percent summary period with chemical samples or no ppt: 66.0
Percent of total measured ppt with chemical samples: 76.1
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 96.4

Total measured ppt, in mm: 859.9

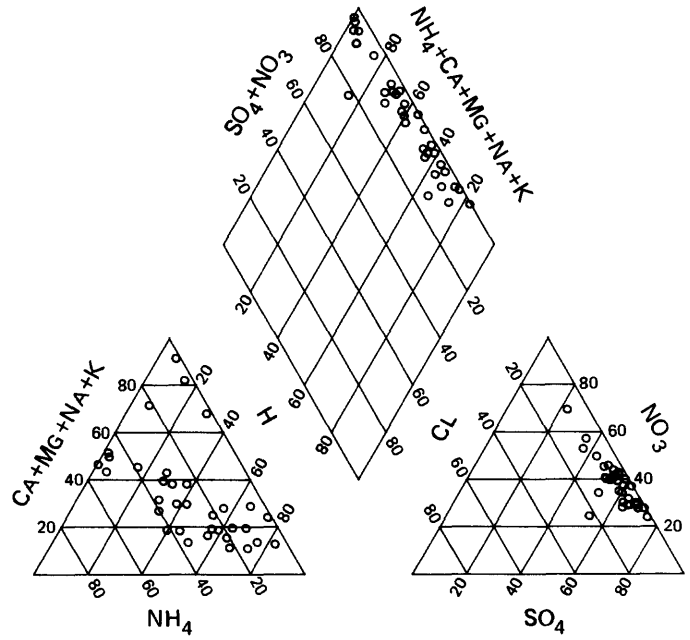
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	3.6	3.86	0.03	0.007	0.010	0.002	0.01	0.01	0.25	0.35	4.07E-04
10 percentile	.36	7.0	4.32	.04	.011	.015	.006	.01	.02	.58	.48	2.48E-03
25 percentile	2.70	10.0	4.55	.09	.016	.023	.012	.09	.07	.89	.9	7.30E-03
50 percentile	10.70	15.5	4.70	.19	.030	.044	.019	.26	.11	1.22	1.68	1.97E-02
75 percentile	21.90	22.4	5.14	.38	.057	.088	.035	.48	.14	2.05	2.36	2.82E-02
90 percentile	43.75	30.7	5.60	.64	.122	.241	.064	1.04	.21	3.06	3.9	4.79E-02
Maximum value	71.90	69.5	6.39	1.61	.350	.640	.139	2.02	.34	5.81	5.80	1.38E-01
Volume-weighted mean	NA	15.2	4.64	.19	.033	.044	.021	.28	.08	1.12	1.58	2.28E-02
Arithmetic mean	16.54	17.5	4.84	.27	.052	.088	.027	.38	.11	1.62	1.87	2.37E-02
No. of samples	52	34	34	34	34	34	34	34	34	34	34	34
Total load, g/m2	NA	NA	NA	0.122	0.022	0.029	0.014	0.181	0.054	0.734	1.035	1.5E-02
Msximum interval load, g/m2	NA	NA	NA	.020	.005	.004	.003	.043	.005	.101	0.183	1.9E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.13	-0.14	-.29	-.33	-.52	-.25	-.19	-.42	-.39	-.16	0.14
P-level		.279	.260	.018	.007	.000	.036	.122	.001	.001	.192	.260



Percentiles of volume-weighted mean concentrations for site WI36, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site WI36. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site WI36.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

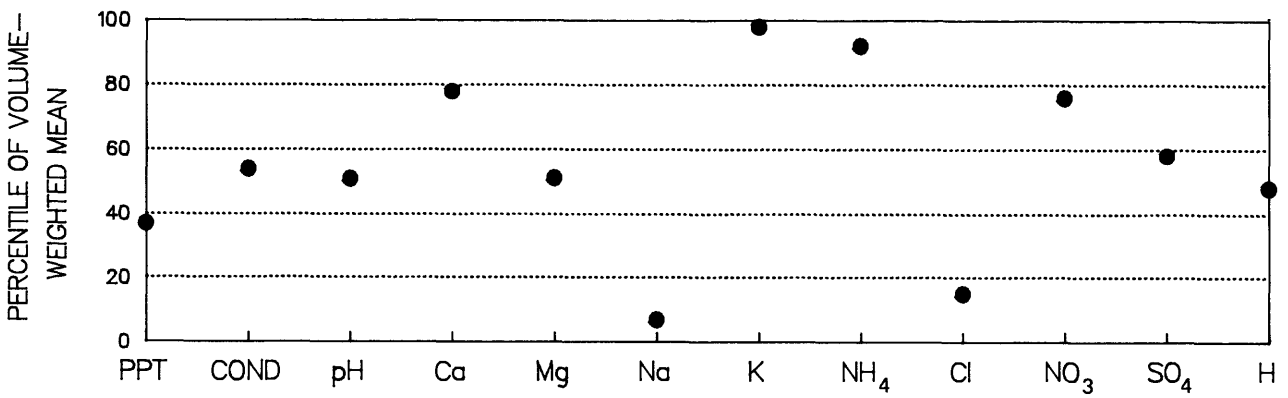
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Spooner, Wisconsin — Latitude: 45°49'21" Longitude: 91°52'30"
CAL number: WI37 — Map ID number: 104
ADS number: 077a00
Station altitude above mean sea level, in meters: 331
Number of sampling intervals (days in parenthesis):

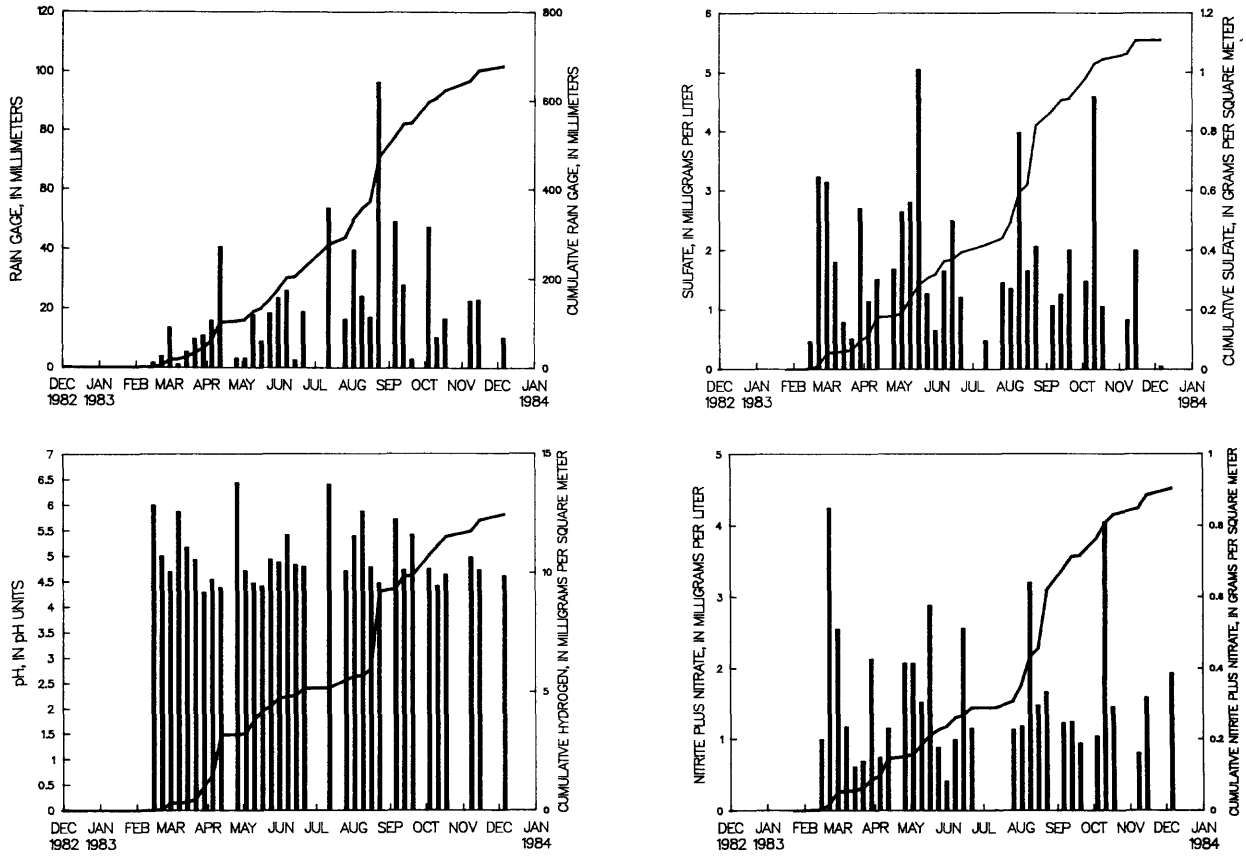
-- With ppt measurements:	53	(371)
-- When ppt occurred:	51	(357)
-- When ppt did not occur:	2	(14)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	33	(231)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 66.0
Percent of total measured ppt with chemical samples: 74.3
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 92.8
Total measured ppt, in mm: 914.2

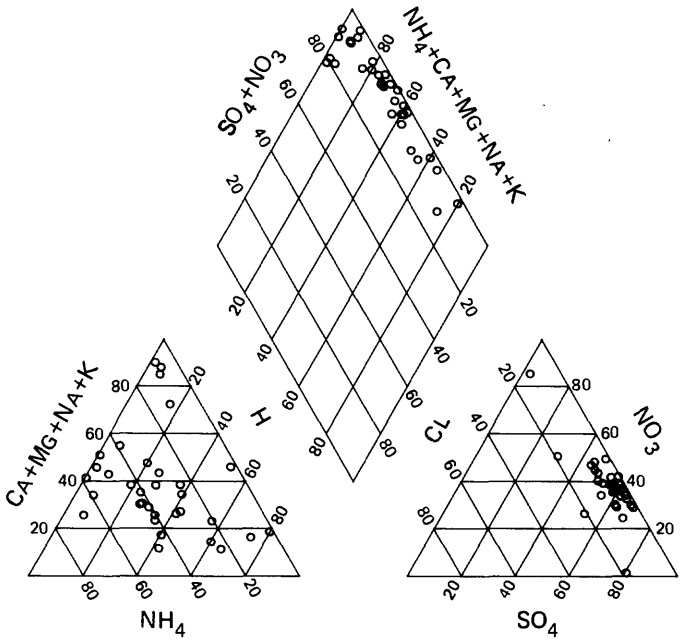
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	6.9	4.29	0.04	0.010	0.016	0.012	0.01	0.01	0.01	0.05	3.72E-04
10 percentile	.38	7.5	4.41	.07	.015	.023	.015	.03	.03	.64	.49	1.14E-03
25 percentile	2.95	9.4	4.61	.12	.025	.028	.022	.13	.06	.97	1.06	3.98E-03
50 percentile	10.40	13.2	4.79	.22	.038	.053	.035	.39	.11	1.23	1.51	1.62E-02
75 percentile	23.75	21.5	5.40	.45	.068	.109	.047	.63	.16	2.07	2.56	2.43E-02
90 percentile	47.56	25.9	5.95	.75	.129	.187	.105	1.20	.31	3.07	3.67	3.89E-02
Maximum value	96.30	35.1	6.43	1.11	.185	.637	.596	1.62	.59	4.24	5.04	5.13E-02
Volume-weighted mean	NA	14.8	4.74	.25	.039	.046	.057	.41	.11	1.33	1.63	1.83E-02
Arithmetic mean	17.25	15.7	5.01	.32	.053	.088	.059	.47	.14	1.57	1.82	1.70E-02
No. of samples	53	33	33	33	33	33	33	33	33	33	33	33
Total load, g/m2	NA	NA	NA	0.170	0.027	0.032	0.039	0.281	0.074	0.904	1.110	1.2E-02
Maximum interval load, g/m2	NA	NA	NA	.027	.005	.004	.014	.062	.014	.161	.198	3.3E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.14	-0.03	-.20	-.40	-.55	-.04	-.08	-.28	-.16	-.12	0.03
P-level		.258	.828	.107	.001	.000	.756	.515	.023	.182	.321	.828



Percentiles of volume-weighted mean concentrations for site WI37, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site WI37.
Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site WI37.

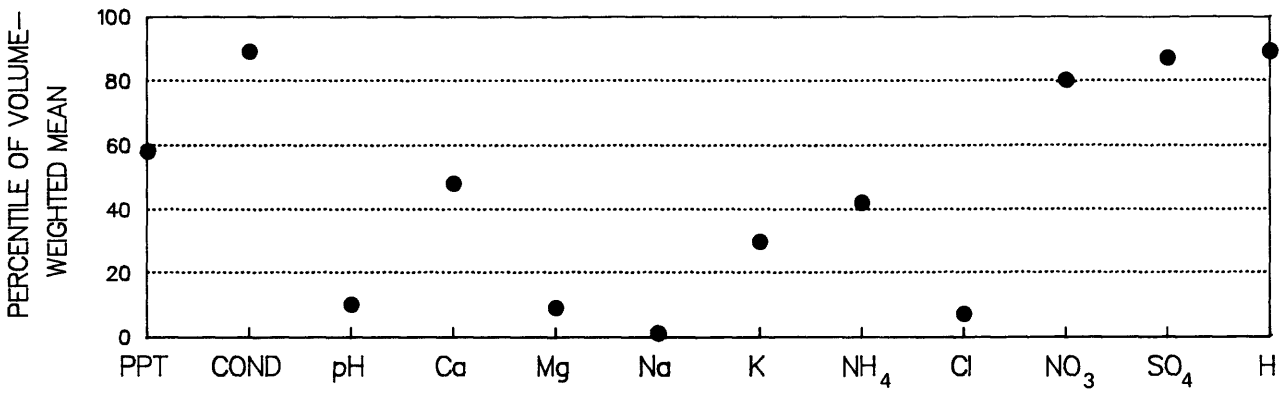
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

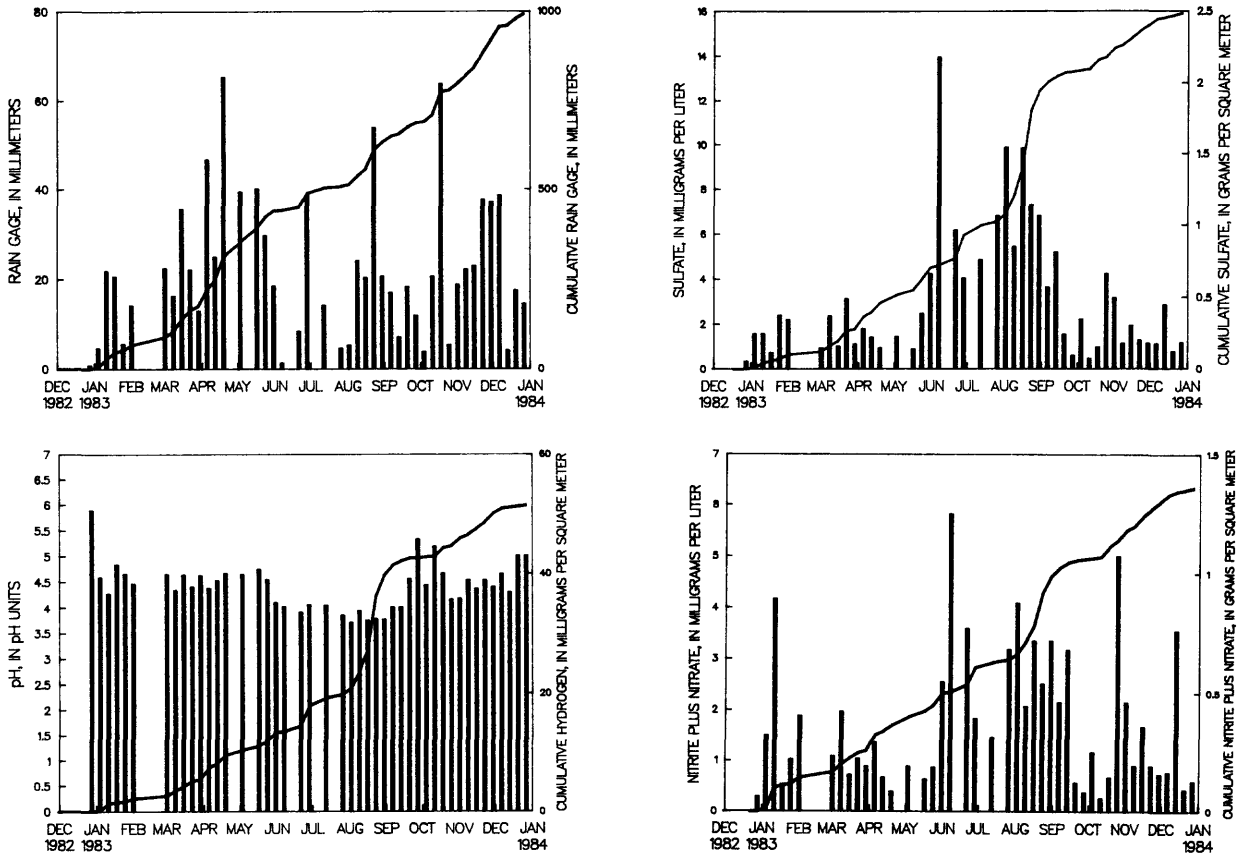
STATION: Psrsons, West Virginia — Latitude: 39°05'23" Longitude: 79°39'44"
CAL number: WV18 — Map ID number: 106
ADS number: 075a00 — Stetion summary period: 12/28/1982 to 01/03/1984
Station altitude above mean sea level, in meters: 305 — Length of summary period: 53 sampling intervals (371 days)
Number of sampling intervals (days in parenthesis):

-- With ppt measurements:	53	(371)	Percent summary period with ppt measurements: 100.0
-- When ppt occurred:	52	(364)	Percent summary period with chemical samples or no ppt: 86.8
-- When ppt did not occur:	1	(7)	Percent of total measured ppt with chemical samples: 80.8
-- When sample volume was substituted for missing rain gage:	0	(0)	Percent of total measured ppt in raingage thet was collected in the wet-sample bucket: 91.2
-- With chemical samples:	45	(315)	Total measured ppt, in mm: 1230.3

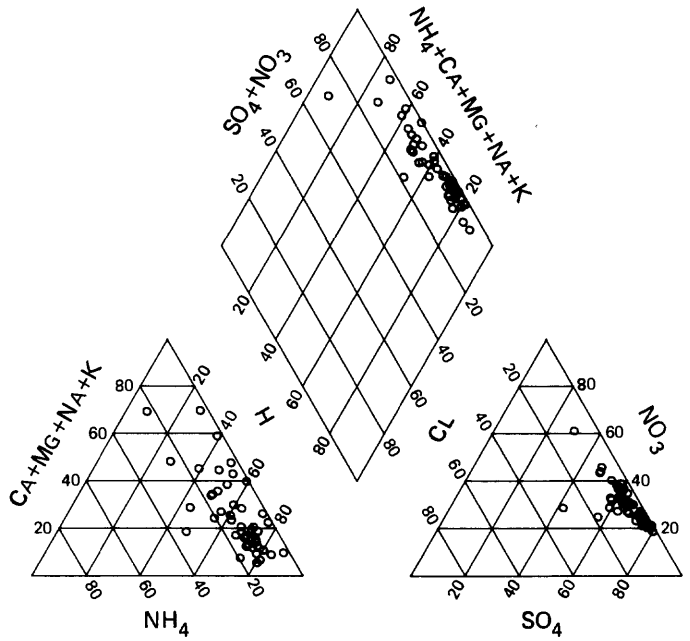
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium es Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	3.6	3.71	0.03	0.004	0.010	0.004	0.01	0.01	0.26	0.33	1.26E-03
10 percentile	3.92	7.2	3.82	.05	.010	.020	.009	.01	.04	.41	.75	9.77E-03
25 percentile	7.75	13.2	4.05	.10	.015	.030	.014	.06	.08	.70	1.11	2.21E-02
50 percentile	20.30	19.8	4.44	.16	.025	.042	.030	.14	.11	1.17	1.94	3.63E-02
75 percentile	36.35	45.0	4.65	.28	.037	.077	.046	.31	.17	2.53	4.24	8.81E-02
90 percentile	58.28	75.3	5.01	.54	.080	.149	.086	.49	.27	3.79	6.99	1.51E-01
Maximum value	65.30	93.1	5.90	2.53	.315	.351	.129	1.60	.51	5.82	13.93	1.95E-01
Volume-weighted mean	NA	26.4	4.29	.15	.022	.041	.026	.18	.10	1.37	2.50	5.17E-02
Arithmetic mean	23.21	30.4	4.43	.26	.038	.067	.037	.22	.14	1.75	3.08	5.69E-02
No. of samples	53	45	45	45	45	45	45	45	45	45	45	45
Total load, g/m2	NA	NA	NA	0.151	0.022	0.041	0.026	0.174	0.103	1.358	2.485	5.1E-02
Maximum interval load, g/m2	NA	NA	NA	.013	.002	.002	.002	.029	.008	0.135	0.393	8.9E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.19	0.13	-.49	-.62	-.54	-.39	-.10	-.35	-.23	-.20	-0.13
P-level		.069	.221	.000	.000	.000	.000	.356	.001	.025	.054	.221



Percentiles of volume-weighted mean concentrations for site WV18, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site WV18. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site WV18.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

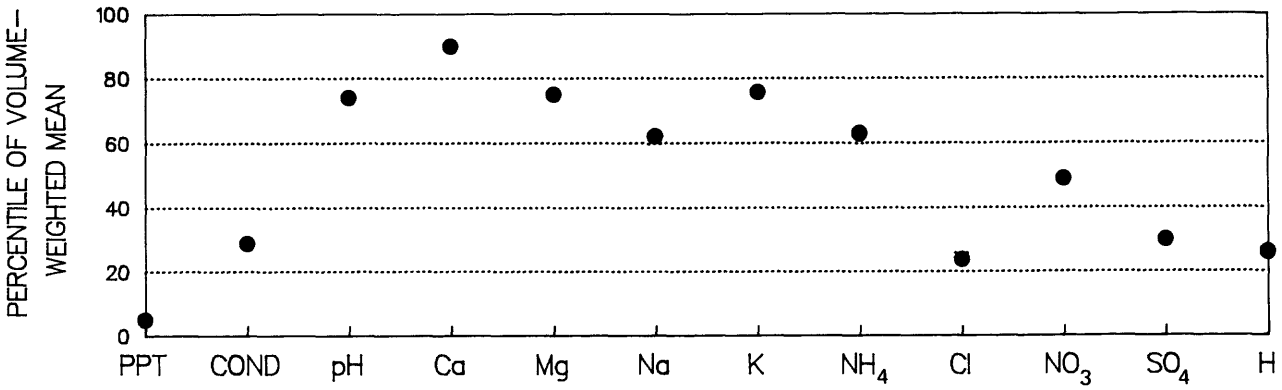
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Newcastle, Wyoming — Latitude: 43°52'24" Longitude: 104°11'32"
CAL number: WY99 — Map ID number: 109
ADS number: 255a00
Station altitude above mean sea level, in meters: 1466
Number of sampling intervals (days in parenthesis):

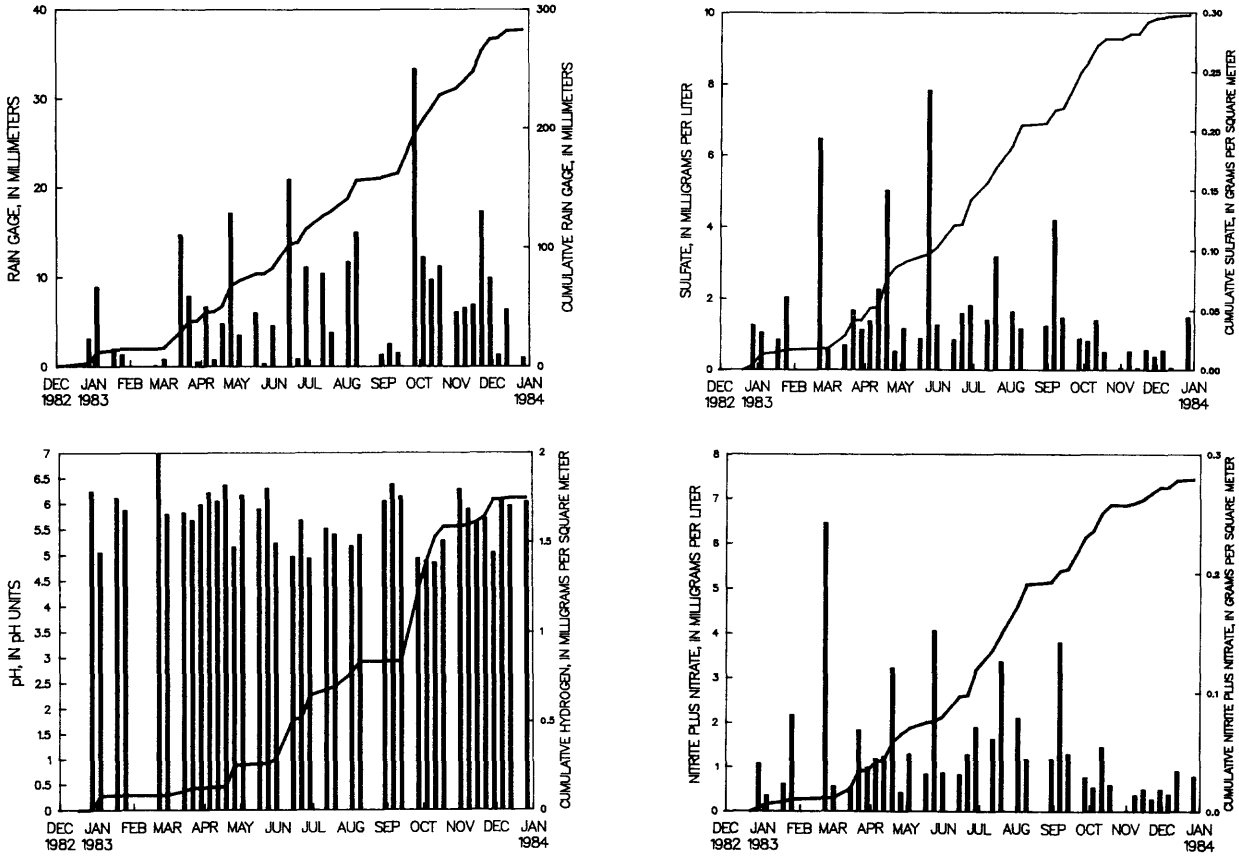
-- With ppt measurements:	54	(371)
-- When ppt occurred:	47	(322)
-- When ppt did not occur:	7	(49)
-- When sample volume was substituted for missing rain gage:	12	(84)
-- With chemical samples:	39	(272)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 54 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 86.5
Percent of total measured ppt with chemical samples: 81.9
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 84.8
Total measured ppt, in mm: 346.5

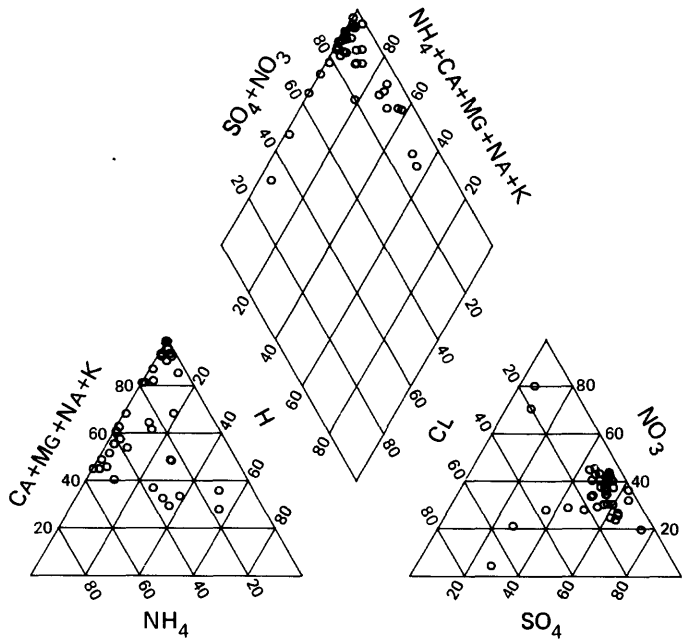
Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.8	4.85	0.05	0.011	0.020	0.002	0.01	0.01	0.01	0.05	5.62E-05
10 percentile	.00	4.2	4.93	.10	.015	.027	.008	.01	.07	.36	.37	5.01E-04
25 percentile	.60	6.8	5.23	.19	.025	.043	.015	.06	.09	.53	.56	7.76E-04
50 percentile	3.80	10.7	5.82	.38	.070	.149	.038	.17	.18	.98	1.16	1.51E-03
75 percentile	10.75	13.5	6.11	.85	.144	.273	.114	.49	.26	1.63	1.63	5.89E-03
90 percentile	16.26	26.3	6.30	1.35	.196	.751	.134	.68	.58	3.36	4.18	1.17E-02
Maximum value	34.50	143.7	7.25	8.04	.505	21.733	.387	1.93	4.71	6.45	7.81	1.41E-02
Volume-weighted mean	NA	9.1	5.21	.34	.048	.123	.039	.27	.12	.98	1.05	6.15E-03
Arithmetic mean	6.54	15.0	5.72	.76	.098	.794	.066	.30	.33	1.36	1.58	3.65E-03
No. of samples	53	39	39	39	39	39	39	39	39	39	39	39
Total load, g/m2	NA	NA	NA	0.096	0.013	0.035	0.011	0.076	0.035	0.279	0.298	1.7E-03
Maximum interval load, g/m2	NA	NA	NA	.008	.001	.007	.001	.009	.003	.025	.029	3.9E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.33	-0.47	-.48	-.62	-.59	-.37	-.01	-.52	-.23	-.27	0.47
P-level		.003	.000	.000	.000	.000	.001	.932	.000	.036	.016	.000



Percentiles of volume-weighted mean concentrations for site WY99, based on frequency distributions of data from 55 National Trends Network sites.



Bar plots of concentrations and cumulative line plots of loads for site WY99. Nitrite plus nitrate are reported as NO_3 and sulfate as SO_4.



Percentage composition of major ions for site WY99.

APPENDIX III:

Statistical Summaries for

Stations with Partial Records of

Precipitation-chemistry Data in 1983

(Station summaries are ordered numberically by
Map ID numbers listed in table 1)

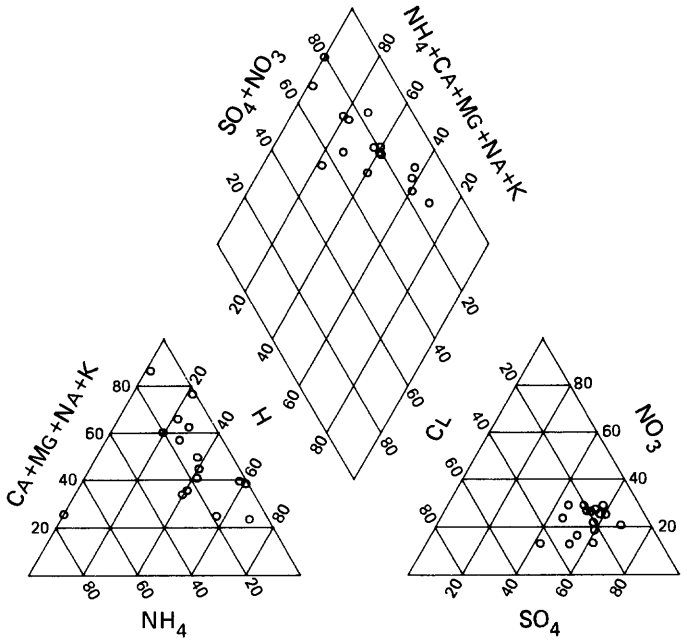
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Blackbelt, Alabama — Latitude: 32°27'30" Longitude: 87°14'31"
CAL number: AL10 — Map ID number: 1
ADS number: 329a00
Station altitude above mean sea level, in meters: 58
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 18 (125)
-- When ppt occurred: 16 (111)
-- When ppt did not occur: 2 (14)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 16 (111)

Station summary period: 08/31/1983 to 01/03/1984
Length of summary period: 18 sampling intervals (125 days)
Percent summary period with ppt measurements: 33.7
Percent summary period with chemical samples or no ppt: 33.7
Percent of total measured ppt with chemical samples: 100.0
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 99.6
Total measured ppt, in mm: 500.6

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	4.2	4.41	0.03	0.013	0.060	0.011	0.01	0.11	0.17	0.53	6.17E-05
10 percentile	.00	5.0	4.46	.04	.013	.072	.012	.01	.13	.23	.54	1.01E-03
25 percentile	5.02	7.6	4.73	.06	.020	.124	.020	.05	.21	.32	.74	6.26E-03
50 percentile	22.70	11.3	4.91	.09	.035	.193	.024	.08	.32	.62	1.10	1.22E-02
75 percentile	45.85	13.2	5.21	.27	.060	.257	.047	.14	.42	.82	1.50	1.84E-02
90 percentile	74.84	31.0	6.26	.56	.133	.783	.411	1.96	1.04	1.89	2.64	3.49E-02
Maximum value	85.10	58.1	7.21	.57	.169	1.120	.973	6.06	1.47	3.63	4.88	3.89E-02
Volume-weighted mean	NA	9.4	4.88	.09	.032	.193	.032	.14	.32	.46	.91	1.32E-02
Arithmetic mean	27.81	13.5	5.09	.18	.048	.261	.096	.46	.40	.76	1.31	1.36E-02
No. of samples	18	16	16	16	16	16	16	16	16	16	16	16
Total load, g/m^2	NA	NA	NA	0.047	0.016	0.097	0.016	0.070	0.161	0.230	0.457	6.6E-03
Maximum interval load, g/m^2	NA	NA	NA	.008	.004	.029	.005	.029	.049	.034	.062	1.5E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.43	-0.12	-.49	-.48	-.24	-.59	-.24	-.30	-.56	-.57	0.12
P-level		.019	.529	.010	.010	.190	.001	.204	.104	.003	.002	.529



Percentage composition of major ions for site AL10.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Caddo Valley, Arkansas — Latitude: 34°10'46" Longitude: 93°05'55"

CAL number: AR03 — Map ID number: 3

ADS number: 330a00

Station altitude above mean sea level, in meters: 71

Number of sampling intervals (days in parenthesis):

- -- With ppt measurements: 1 (4)
- -- When ppt occurred: 1 (4)
- -- When ppt did not occur: 0 (0)
- -- When sample volume was substituted for missing rain gage: 0 (0)
- -- With chemical samples: ( )

Station summary period: 12/30/1983 to 01/03/1984

Length of summary period: 1 sampling intervals (4 days)

Percent summary period with ppt measurements: 1.1

Percent summary period with chemical samples or no ppt:

Percent of total measured ppt with valid samples:

Percent of total measured ppt in raingage that was collected in the wet-sample bucket:

Total measured ppt, in mm: 0.3

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.30											
10 percentile	.30											
25 percentile	.30											
50 percentile	.30											
75 percentile	.30											
90 percentile	.30											
Maximum value	.30											
Volume-weighted mean	NA											
Arithmetic mean	.30											
No. of samples	1											
Total load, g/m^2	NA	NA	NA									
Maximum interval load, g/m^2	NA	NA	NA									
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau												
P-level												

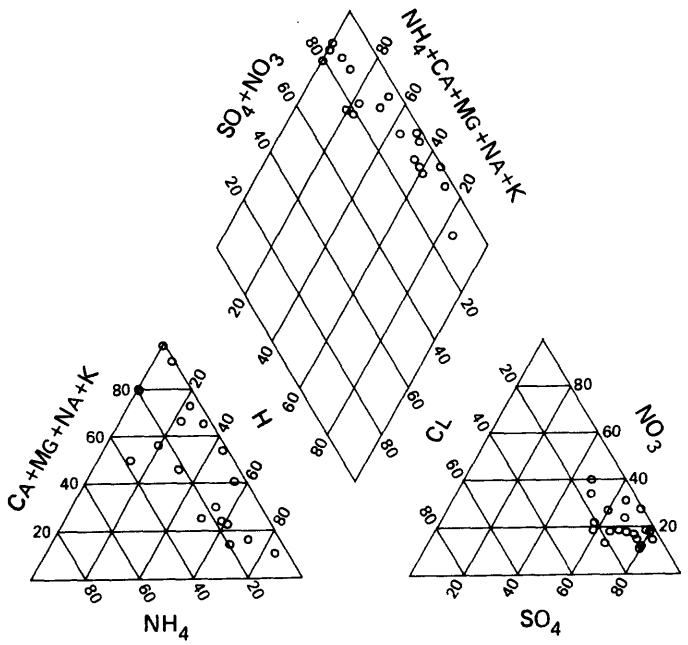
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; µs = microsiemens; cond = specific conductance]

STATION: Oliver Knoll, Arizona — Latitude: 33°04'17" Longitude: 109°51'53"
CAL number: AZ99 — Map ID number: 7
ADS number: 054a00 — Station summary period: 12/28/1982 to 01/10/1984
Station altitude above mean sea level, in meters: 1173 — Length of summary period: 53 sampling intervals (378 days)

Number of sampling intervals (days in parenthesis):			Percent summary period with ppt measurements:	101.9
-- With ppt measurements:	53	(378)	Percent summary period with chemical samples or no ppt:	59.8
-- When ppt occurred:	41	(294)	Percent of total measured ppt with chemical samples:	70.1
-- When ppt did not occur:	12	(84)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	97.8
-- When sample volume was substituted for missing rain gage:	0	(0)		
-- With chemical samples:	19	(138)	Total measured ppt, in mm: 476.2	

Statistical measures	Measured ppt, mm	Lab specific conductance, µS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	4.3	4.29	0.00	0.004	0.012	0.002	0.01	0.01	0.17	0.53	6.61E-04
10 percentile	.00	5.1	4.47	.03	.010	.019	.004	.01	.05	.17	.53	6.61E-04
25 percentile	.00	8.0	4.64	.08	.017	.045	.007	.01	.06	.27	1.09	5.37E-03
50 percentile	2.00	11.2	4.92	.18	.060	.104	.026	.09	.09	.62	1.42	1.20E-02
75 percentile	10.55	19.0	5.27	.44	.114	.282	.051	.29	.34	1.36	2.51	2.29E-02
90 percentile	22.38	26.4	6.18	1.97	.273	.665	.159	.54	1.04	2.15	4.48	3.39E-02
Maximum value	140.70	33.6	6.18	3.28	.352	.768	.171	.63	1.20	2.19	4.50	5.13E-02
Volume-weighted mean	NA	9.0	4.83	.09	.020	.050	.011	.07	.08	.37	1.04	1.47E-02
Arithmetic mean	8.98	14.4	5.07	.52	.084	.219	.042	.18	.28	.81	1.93	1.45E-02
No. of samples	53	19	19	19	19	19	19	19	19	19	19	19
Total load, g/m^2	NA	NA	NA	0.032	0.007	0.017	0.004	0.024	0.027	0.123	0.349	4.9E-03
Maximum interval load, g/m^2	NA	NA	NA	.004	.001	.002	.001	.008	.008	.034	.075	1.5E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.35	-0.32	-.75	-.76	-.70	-.68	-.25	-.58	-.55	-.45	0.32
P-level		.036	.058	.000	.000	.000	.000	.146	.001	.001	.008	.058



Percentage composition of major ions for site AZ99.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Chuchupate Ranger Station, California — Latitude: 34°48'22" Longitude: 119°00'38"

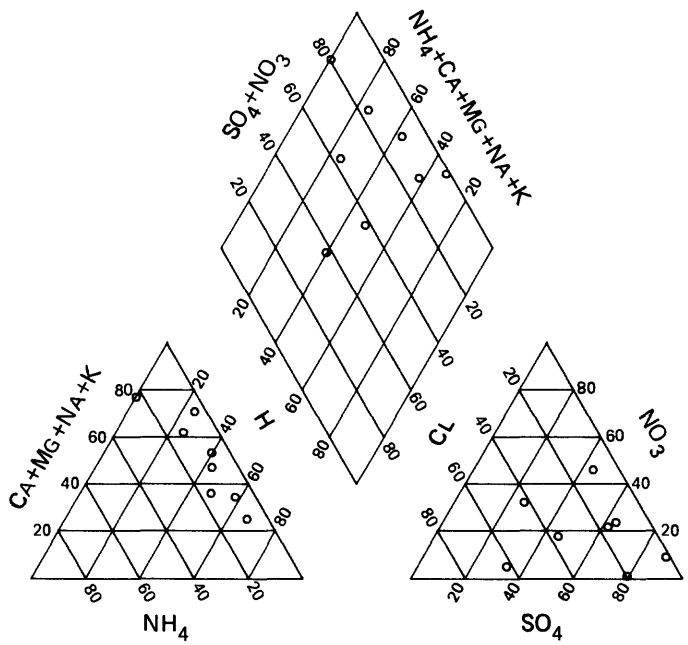
CAL number: CA98 — Map ID number: 12

ADS number: 332a00 — Station summary period: 08/02/1983 to 01/03/1984

Station altitude above mean sea level, in meters: 1623 — Length of summary period: 22 sampling intervals (154 days)

Number of sampling intervals (days in parenthesis):			Percent summary period with ppt measurements:	41.5
-- With ppt measurements:	22	(154)	Percent summary period with chemical samples or no ppt:	28.3
-- When ppt occurred:	15	(105)	Percent of total measured ppt with chemical samples:	82.3
-- When ppt did not occur:	7	(49)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	87.7
-- When sample volume was substituted for missing rain gage:	0	(0)		
-- With chemical samples:	8	(56)	Total measured ppt, in mm:	214.7

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	1.9	5.01	0.00	0.003	0.017	0.002	0.01	0.01	0.01	0.05	2.63E-04
10 percentile	.00	1.9	5.01	.00	.003	.017	.002	.01	.01	.01	.05	2.63E-04
25 percentile	.00	2.1	5.34	.01	.004	.019	.004	.01	.06	.08	.12	2.06E-03
50 percentile	.30	2.7	5.50	.03	.016	.044	.010	.01	.09	.16	.52	3.16E-03
75 percentile	15.52	6.3	5.70	.10	.026	.101	.026	.04	.17	.26	.76	4.55E-03
90 percentile	40.67	24.0	6.58	.53	.287	1.147	.886	.65	1.62	.93	8.87	9.77E-03
Maximum value	57.20	24.0	6.58	.53	.287	1.147	.886	.65	1.62	.93	8.87	9.77E-03
Volume-weighted mean	NA	2.7	5.46	.02	.009	.037	.007	.01	.08	.16	.34	3.49E-03
Arithmetic mean	9.76	5.8	5.57	.10	.048	.185	.120	.10	.28	.24	1.47	3.76E-03
No. of samples	22	8	8	8	8	8	8	8	8	8	8	8
Total load, g/m^2	NA	NA	NA	0.004	0.002	0.007	0.001	0.003	0.014	0.029	0.059	6.2E-04
Maximum interval load, g/m^2	NA	NA	NA	.001	.000	.003	.000	.001	.005	.011	.024	2.4E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.47	-0.08	-.76	-.69	-.47	-.72	-.50	-.52	-.15	-.44	0.08
P-level		.105	.798	.009	.018	.105	.016	.112	.079	.615	.132	.798



Percentage composition of major ions for site CA98.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Alamosa, Colorado — Latitude: 37°26'36" Longitude: 105°51'55"
CAL number: CO00 — Map ID number: 14
ADS number: 160a03 — Station summary period: 10/18/1983 to 01/03/1984
Station altitude above mean sea level, in meters: 2298 — Length of summary period: 11 sampling intervals (77 days)

Number of sampling intervals (days in parenthesis):			Percent summary period with ppt measurements:	20.8
-- With ppt measurements:	11	(77)	Percent summary period with chemical samples or no ppt:	7.5
-- When ppt occurred:	9	(63)	Percent of total measured ppt with chemical samples:	33.4
-- When ppt did not occur:	2	(14)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	54.1
-- When sample volume was substituted for missing rain gage:	0	(0)		
-- With chemical samples:	2	(14)	Total measured ppt, in mm:	44.3

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum velue	0.00	5.6	4.28	0.15	0.019	0.108	0.073	0.44	0.15	0.57	0.74	1.38E-03
10 percentile	.00	5.6	4.28	.15	.019	.108	.073	.44	.15	.57	.74	1.38E-03
25 percentile	.00	5.6	4.28	.15	.019	.108	.073	.44	.15	.57	.74	1.38E-03
50 percentile	1.30	35.0	5.07	.70	.151	.417	.129	.95	.38	2.65	5.04	2.69E-02
75 percentile	7.60	64.4	5.86	1.25	.283	.726	.186	1.46	.62	4.73	9.34	5.25E-02
90 percentile	13.98	64.4	5.86	1.25	.283	.726	.186	1.46	.62	4.73	9.34	5.25E-02
Maximum value	14.50	64.4	5.86	1.25	.283	.726	.186	1.46	.62	4.73	9.34	5.25E-02
Volume-weighted mean	NA	6.6	5.65	.17	.024	.119	.075	.46	.16	.64	.89	2.25E-03
Arithmetic mean	4.03	35.0	5.07	.70	.151	.417	.129	.95	.38	2.65	5.04	2.69E-02
No. of samples	11	2	2	2	2	2	2	2	2	2	2	2
Total load, g/m^2	NA	NA	NA	0.002	0.000	0.002	0.001	0.007	0.002	0.009	0.013	3.3E-05
Maximum interval load, g/m^2	NA	NA	NA	.002	.000	.002	.001	.006	.002	.008	.011	2.0E-05
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-1.00	1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
P-level		.000	0.000	.000	.000	.000	.000	.000	.000	.000	.000	0.000

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Alamosa, Colorado — Latitude: 37°26'36" Longitude: 105°51'55"
CAL number: CO00 — Map ID number: 14
ADS number: 160a02 — Station summary period: 12/28/1982 to 10/18/1983
Station altitude above mean sea level, in meters: 2298 — Length of summary period: 42 sampling intervals (294 days)

Number of sampling intervals (days in parenthesis):			Percent summary period with ppt measurements:	79.2
-- With ppt measurements:	42	(294)	Percent summary period with chemical samples or no ppt:	54.7
-- When ppt occurred:	37	(259)	Percent of total measured ppt with chemical samples:	75.5
-- When ppt did not occur:	5	(35)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	93.2
-- When sample volume was substituted for missing rain gage:	0	(0)		
-- With chemical samples:	24	(168)	Total measured ppt, in mm: 142.1	

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	4.2	4.63	0.11	0.020	0.060	0.015	0.12	0.03	0.39	0.57	1.51E-04
10 percentile	.00	7.0	4.95	.18	.027	.097	.036	.20	.06	.71	.74	3.32E-04
25 percentile	.30	9.1	5.67	.27	.040	.127	.049	.31	.17	.89	1.12	6.65E-04
50 percentile	1.80	12.6	5.88	.63	.079	.236	.077	.56	.23	1.55	1.50	1.31E-03
75 percentile	5.37	16.4	6.18	.84	.123	.417	.159	.75	.38	1.74	2.22	2.15E-03
90 percentile	8.81	27.8	6.49	1.36	.214	1.663	.390	1.13	.89	2.77	4.42	1.11E-02
Maximum value	27.40	55.5	6.82	3.25	.313	3.920	.703	1.33	1.11	4.04	14.54	2.34E-02
Volume-weighted mean	NA	10.4	5.56	.40	.053	.194	.081	.52	.17	1.20	1.37	2.76E-03
Arithmetic mean	3.38	15.3	5.86	.70	.097	.528	.139	.59	.33	1.57	2.28	3.03E-03
No. of samples	42	24	24	24	24	24	24	24	24	24	24	24
Total load, g/m^2	NA	NA	NA	0.043	0.006	0.021	0.009	0.056	0.018	0.129	0.147	3.0E-04
Maximum interval load, g/m^2	NA	NA	NA	.005	.001	.002	.002	.013	.002	.024	.030	7.4E-05
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.59	-0.27	-.58	-.76	-.77	-.42	-.23	-.61	-.45	-.53	0.27
P-level		.000	.076	.000	.000	.000	.004	.122	.000	.002	.000	.076

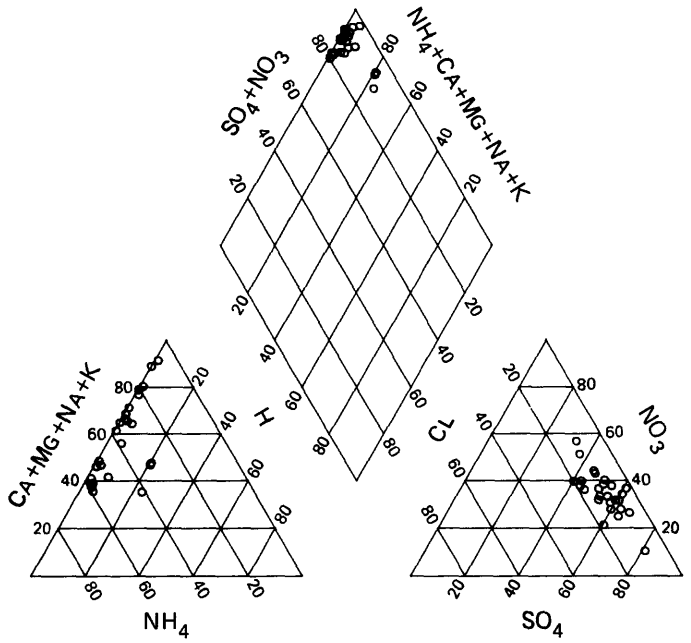
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Alamosa, Colorado (composite data from sites 160a02 and 160a03) Latitude: 37°26'36" Longitude: 105°51'55"
CAL number: CO00 Map ID number: 14
ADS number: 160a
Station altitude above mean sea level, in meters: 2298
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 53 (371)
-- When ppt occurred: 46 (322)
-- When ppt did not occur: 7 (49)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 26 (182)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 62.3
Percent of total measured ppt with chemical samples: 65.7
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 88.3
Total measured ppt, in mm: 186.4

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	4.2	4.28	0.11	0.019	0.060	0.015	0.12	0.03	0.39	0.57	1.51E-04
10 percentile	.00	6.3	4.85	.16	.025	.099	.038	.22	.07	.65	.70	3.62E-04
25 percentile	.30	8.8	5.65	.27	.038	.125	.051	.34	.16	.85	1.10	7.05E-04
50 percentile	1.80	12.6	5.84	.63	.079	.236	.077	.56	.23	1.55	1.50	1.43E-03
75 percentile	5.45	17.7	6.15	.86	.135	.478	.162	.77	.41	1.84	2.34	2.23E-03
90 percentile	10.28	38.5	6.45	1.33	.270	1.398	.345	1.24	.87	3.29	6.28	1.49E-02
Maximum value	27.40	64.4	6.82	3.25	.313	3.920	.703	1.46	1.11	4.73	14.54	5.25E-02
Volume-weighted mean	NA	10.0	5.57	.37	.050	.185	.080	.52	.17	1.13	1.31	2.70E-03
Arithmetic mean	3.52	16.8	5.80	.70	.102	.519	.138	.62	.33	1.65	2.49	4.87E-03
No. of samples	53	26	26	26	26	26	26	26	26	26	26	26
Total load, g/m^2	NA	NA	NA	0.045	0.006	0.023	0.010	0.063	0.020	0.138	0.160	3.3E-04
Maximum interval load, g/m^2	NA	NA	NA	.005	.001	.002	.002	.013	.002	.024	.030	7.4E-05
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.64	-0.16	-.61	-.78	-.77	-.43	-.28	-.63	-.52	-.58	0.16
P-level		.000	.277	.000	.000	.000	.003	.046	.000	.000	.000	.277



Percentage composition of major ions for site CO00.

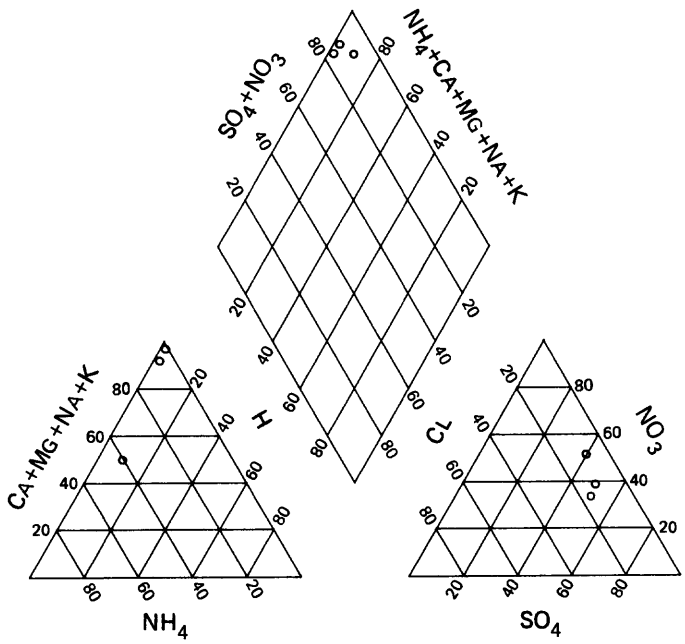
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Las Animas, Colorado — Latitude: 38°07'04" Longitude: 103°18'57"
CAL number: CO01 — Map ID number: 15
ADS number: 333a00 — Station summary period: 10/04/1983 to 01/03/1984
Station altitude above mean sea level, in meters: 1212 — Length of summary period: 13 sampling intervals (91 days)

Number of sampling intervals (days in parenthesis):			Percent summary period with ppt measurements:	24.5
-- With ppt measurements:	13	(91)	Percent summary period with chemical samples or no ppt:	13.2
-- When ppt occurred:	9	(63)	Percent of total measured ppt with chemical samples:	37.1
-- When ppt did not occur:	4	(28)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	95.9
-- When sample volume was substituted for missing rain gage:	0	(0)		
-- With chemical samples:	3	(21)	Total measured ppt, in mm:	19.7

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Leb pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.6	5.58	0.13	0.029	0.082	0.049	0.01	0.10	0.78	0.62	9.33E-04
10 percentile	.00	2.6	5.58	.13	.029	.082	.049	.01	.10	.78	.62	9.33E-04
25 percentile	.00	2.6	5.58	.13	.029	.082	.049	.01	.10	.78	.62	9.33E-04
50 percentile	.30	6.3	6.02	.34	.069	.266	.051	.04	.16	.93	.90	9.55E-04
75 percentile	2.95	7.4	6.03	.47	.128	.268	.090	.20	.21	1.04	.92	2.63E-03
90 percentile	4.88	7.4	6.03	.47	.128	.268	.090	.20	.21	1.04	.92	2.63E-03
Maximum value	5.60	7.4	6.03	.47	.128	.268	.090	.20	.21	1.04	.92	2.63E-03
Volume-weighted mean	NA	4.6	5.74	.26	.061	.171	.058	.12	.14	.96	.76	1.82E-03
Arithmetic mean	1.52	5.4	5.88	.31	.075	.205	.063	.08	.16	.92	.81	1.51E-03
No. of samples	13	3	3	3	3	3	3	3	3	3	3	3
Total load, g/m^2	NA	NA	NA	0.002	0.000	0.001	0.000	0.001	0.001	0.007	0.006	1.3E-05
Maximum interval load, g/m^2	NA	NA	NA	.001	.000	.001	.000	.001	.000	.004	.002	1.0E-05
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-1.00	-0.33	-1.00	-1.00	-1.00	-.33	1.00	-1.00	1.00	-.33	0.33
P-level		0.117	.602	.117	.117	.117	.602	.117	.117	.117	.602	.602



Percentage composition of major ions for site CO01.

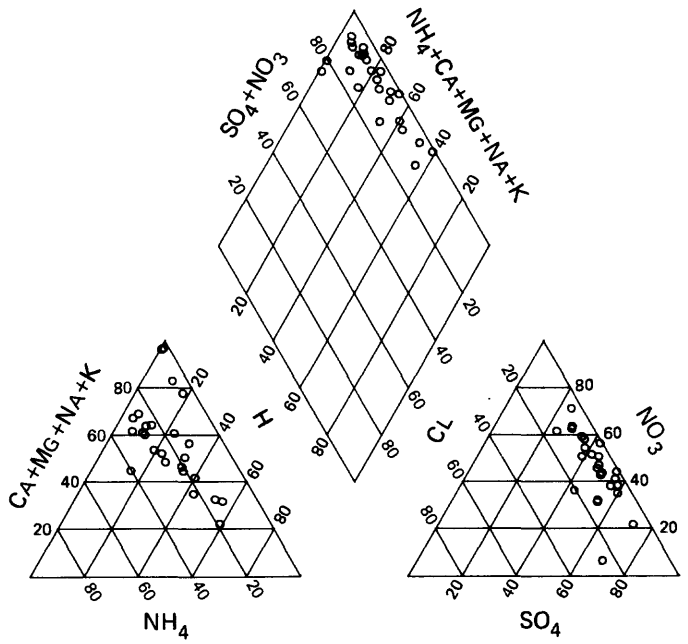
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; µs = microsiemens; cond = specific conductance]

STATION: Manitou, Colorado — Latitude: 39°06'04" Longitude: 105°05'31"
CAL number: CO21 — Map ID number: 17
ADS number: 011a00 — Station summary period: 12/28/1982 to 01/03/1984
Station altitude above mean sea level, in meters: 2362 — Length of summary period: 53 sampling intervals (371 days)

Number of sampling intervals (days in parenthesis):			Percent summary period with ppt measurments:	100.0
-- With ppt measurments:	53	(371)	Percent summary period with chemical samples or no ppt:	60.4
-- When ppt occurred:	46	(322)	Percent of total measured ppt with chemical samples:	46.0
-- When ppt did not occur:	7	(49)	Percent of total measured ppt in raingage that was collected in wet-sample bucket:	91.5
-- When sample volume was substituted for missing rain gage:	0	(0)		
-- With chemical samples:	25	(175)	Total measured ppt, in mm: 488.3	

Statistical measures	Measured ppt, mm	Lab specific conductance, µS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.9	4.18	0.06	0.014	0.020	0.010	0.01	0.01	0.15	0.34	7.08E-04
10 percentile	.00	4.3	4.50	.09	.016	.026	.017	.04	.03	.32	.42	1.63E-03
25 percentile	.30	8.3	4.79	.15	.030	.045	.026	.08	.07	.95	.64	3.94E-03
50 percentile	5.30	9.8	5.17	.27	.054	.094	.047	.18	.12	1.32	1.00	6.76E-03
75 percentile	14.90	15.8	5.40	.59	.137	.165	.077	.26	.17	2.42	1.83	1.62E-02
90 percentile	22.46	22.5	5.84	.84	.150	.350	.262	.48	.35	3.45	2.77	3.19E-02
Maximum value	60.20	40.0	6.15	1.08	.351	1.032	.363	.54	1.10	4.45	3.91	6.61E-02
Volume-weighted mean	NA	9.8	4.94	.22	.041	.056	.063	.14	.08	1.13	.91	1.15E-02
Arithmetic mean	9.21	12.5	5.14	.38	.082	.153	.081	.19	.17	1.65	1.28	1.21E-02
No. of samples	53	25	25	25	25	25	25	25	25	25	25	25
Total load, g/m2	NA	NA	NA	0.048	0.009	0.012	0.014	0.031	0.017	0.254	0.206	2.6E-03
Maximum interval load, g/m2	NA	NA	NA	.007	.002	.001	.006	.004	.002	.027	.032	3.7E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.20	-0.27	-.52	-.67	-.77	-.20	-.23	-.63	-.35	-.32	0.27
P-level		.175	.065	.000	.000	.000	.175	.116	.000	.015	.028	.065



Percentage composition of major ions for site CO21.

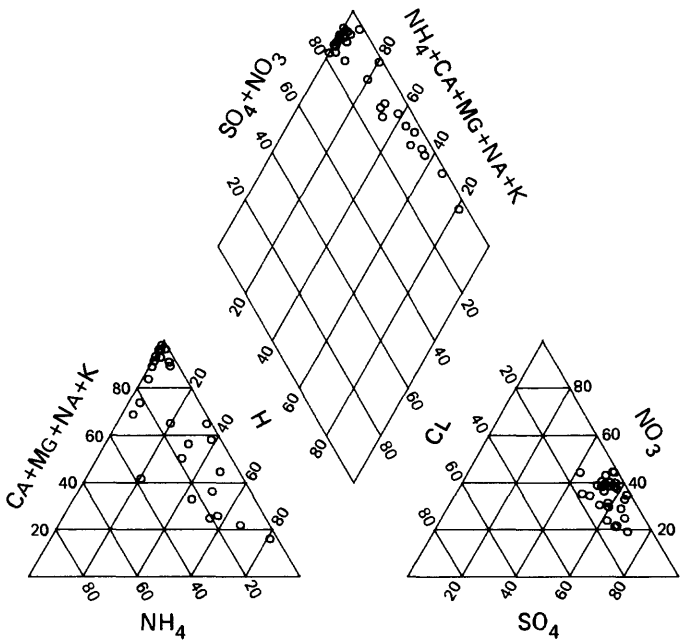
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Mesa Verde, Colorado — Latitude: 37°11'56" Longitude: 108°29'26"
CAL number: CO99 — Map ID number: 19
ADS number: 029a00 — Station summary period: 12/28/1982 to 01/03/1984
Station altitude above mean sea level, in meters: 2172 — Length of summary period: 53 sampling intervals (371 days)
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 53 (371)
-- When ppt occurred: 49 (343)
-- When ppt did not occur: 4 (28)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 27 (189)

Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 58.5
Percent of total measured ppt with chemical samples: 56.5
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 93.6
Total measured ppt, in mm: 573.8

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	3.4	3.84	0.04	0.008	0.008	0.002	0.01	0.01	0.27	0.39	1.38E-04
10 percentile	.00	3.9	4.34	.07	.012	.029	.006	.01	.01	.35	.43	2.14E-04
25 percentile	.80	5.4	4.80	.19	.023	.047	.019	.05	.05	.44	.67	7.59E-04
50 percentile	4.80	11.4	5.41	.48	.051	.072	.031	.09	.10	.71	.80	3.89E-03
75 percentile	19.15	21.2	6.12	1.41	.146	.185	.080	.18	.25	1.76	2.43	1.58E-02
90 percentile	27.96	30.5	6.67	2.64	.228	.498	.152	.25	.60	2.34	3.83	4.57E-02
Maximum value	67.30	136.5	6.86	5.71	.502	1.016	.580	.44	1.60	5.22	12.33	1.45E-01
Volume-weighted mean	NA	10.5	4.86	0.39	.041	.068	.027	.09	.10	.86	1.04	1.37E-02
Arithmetic mean	10.83	17.5	5.47	0.95	.099	.172	.070	.12	.21	1.22	1.80	1.57E-02
No. of samples	53	27	27	27	27	27	27	27	27	27	27	27
Total load, g/m^2	NA	NA	NA	0.127	0.013	0.022	0.009	0.030	0.031	0.278	0.336	4.4E-03
Maximum interval load, g/m^2	NA	NA	NA	.015	.001	.002	.001	.007	.004	.050	.058	1.3E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.38	-0.18	-.58	-.72	-.73	-.68	-.28	-.54	-.29	-.43	0.18
P-level		.006	.189	.000	.000	.000	.000	.042	.000	.037	.002	.189



Percentage composition of major ions for site CO99.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

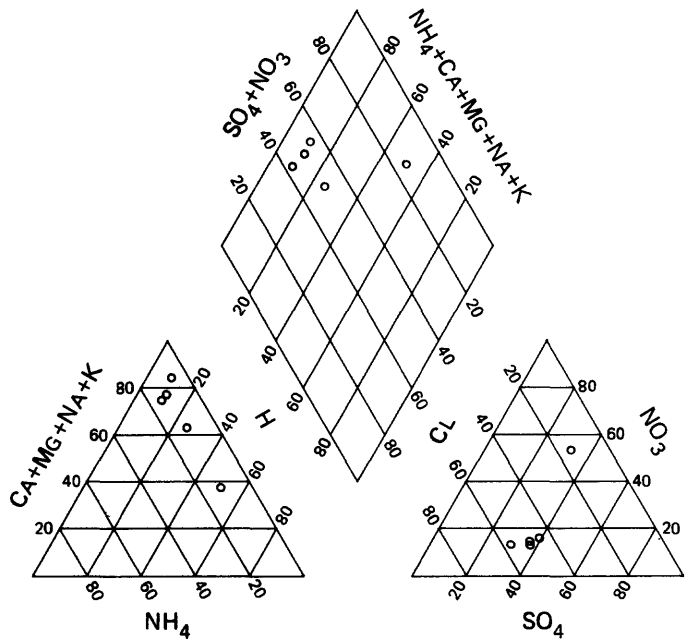
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Verna Well Field, Florida — Latitude: 27°22'48" Longitude: 82°17'02"
CAL number: FL41 — Map ID number: 22
ADS number: 338a00
Station altitude above mean sea level, in meters: 25
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 19 (133)
-- When ppt occurred: 19 (133)
-- When ppt did not occur: 0 (0)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 5 (33)

Station summary period: 08/25/1983 to 01/03/1984
Length of summary period: 19 sampling intervals (131 days)
Percent summary period with ppt measurements: 35.8
Percent summary period with chemical samples or no ppt: 8.9
Percent of total measured ppt with chemical samples: 30.3
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 100.4

Total measured ppt, in mm: 524.1

Statistical meesures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	4.5	4.09	0.04	0.035	0.227	0.017	0.06	0.39	0.24	0.46	2.29E-03
10 percentile	.30	4.5	4.09	.04	.035	.227	.017	.06	.39	.24	.46	2.29E-03
25 percentile	3.30	6.6	4.46	.05	.041	.315	.023	.07	.55	.30	.58	3.71E-03
50 percentile	22.10	9.2	5.01	.12	.075	.521	.037	.10	.77	.41	.92	9.77E-03
75 percentile	46.70	34.9	5.46	.44	.204	1.292	.122	.27	2.17	3.22	2.39	4.80E-02
90 percentile	78.20	40.7	5.64	.50	.290	2.050	.142	.34	3.44	5.04	2.45	8.13E-02
Maximum value	83.80	40.7	5.64	.50	.290	2.050	.142	.34	3.44	5.04	2.45	8.13E-02
Volume-weighted mean	NA	8.4	5.20	.09	.062	.448	.030	.09	.77	.38	.78	6.24E-03
Arithmetic mean	27.58	18.5	4.97	.22	.113	.747	.065	.15	1.24	1.49	1.37	2.27E-02
No. of samples	19	5	5	5	5	5	5	5	5	5	5	5
Total load, g/m^2	NA	NA	NA	0.014	0.010	0.071	0.005	0.014	0.122	0.061	0.124	9.9E-04
Maximum interval load, g/m^2	NA	NA	NA	.009	.006	.042	.002	.008	.071	.032	.072	4.5E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.40	0.60	-.60	-.20	.00	-.40	-.40	.00	-.40	-.20	-0.60
P-level		.327	.142	.142	.624	1.000	.327	.327	1.000	.327	.624	.142



Percentage composition of major ions for site FL41.

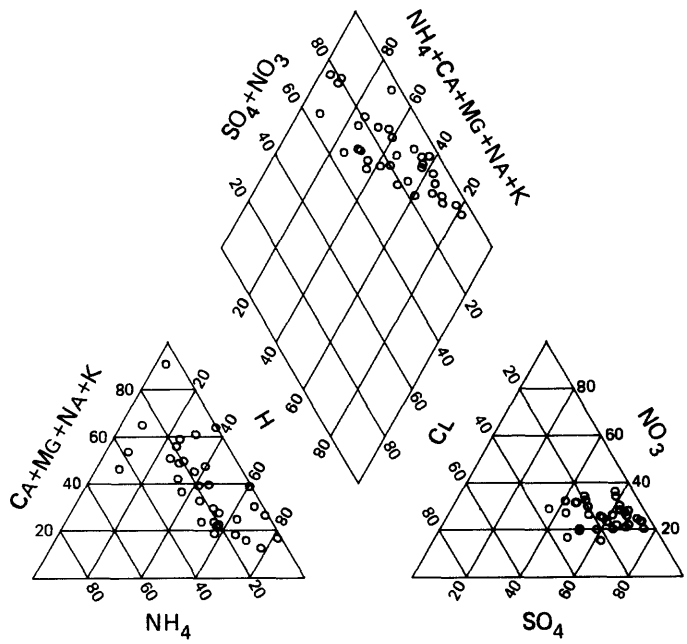
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Georgia Station, Georgia — Latitude: 33°10'40" Longitude: 84°24'22"
CAL number: GA41 — Map ID number: 23
ADS number: 017a00
Station altitude above mean sea level, in meters: 270
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 53 (371)
-- When ppt occurred: 52 (364)
-- When ppt did not occur: 1 (7)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 33 (231)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)
Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 64.2
Percent of total measured ppt with chemical samples: 76.7
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 95.4
Total measured ppt, in mm: 1281.6

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	6.0	4.00	0.03	0.007	0.011	0.008	0.01	0.05	0.21	0.53	1.66E-03
10 percentile	.30	6.7	4.24	.04	.014	.046	.010	.01	.07	.39	.66	4.58E-03
25 percentile	3.95	10.2	4.42	.06	.025	.121	.019	.07	.17	.53	.90	1.20E-02
50 percentile	13.50	14.7	4.64	.13	.033	.172	.033	.15	.29	.86	1.54	2.29E-02
75 percentile	37.60	25.2	4.92	.27	.061	.248	.063	.28	.36	1.41	2.74	3.76E-02
90 percentile	63.62	41.1	5.35	.36	.177	.892	.184	.46	1.01	2.75	4.09	5.84E-02
Maximum value	123.20	59.1	5.78	1.05	.317	1.890	.261	1.25	2.89	4.21	6.64	1.00E-01
Volume-weighted mean	NA	12.8	4.77	.12	.038	.203	.033	.17	.34	.74	1.26	1.68E-02
Arithmetic mean	24.18	19.6	4.70	.19	.060	.292	.057	.22	.41	1.16	1.96	2.85E-02
No. of samples	53	33	33	33	33	33	33	33	33	33	33	33
Total load, g/m^2	NA	NA	NA	0.119	0.037	0.200	0.033	0.167	0.330	0.731	1.237	1.7E-02
Maximum interval load, g/m^2	NA	NA	NA	.027	.008	.048	.006	.032	.073	.107	0.127	1.6E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.49	0.46	-.41	-.47	-.21	-.45	-.15	-.10	-.51	-.48	-0.46
P-level		.000	.000	.001	.000	.094	.000	.232	.429	.000	.000	.000



Percentage composition of major ions for site GA41.

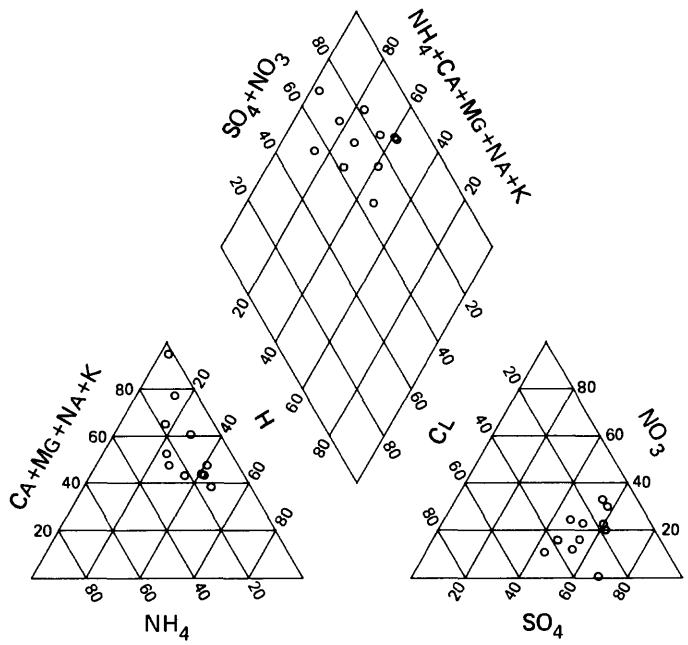
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Tifton, ARS, Georgia — Latitude: 31°28'25" Longitude: 83°31'59"
CAL number: GA50 — Map ID number: 24
ADS number: 340a00
Station altitude above mean sea level, in meters: 104
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 13 (91)
-- When ppt occurred: 13 (91)
-- When ppt did not occur: 0 (0)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 11 (77)

Station summary period: 10/04/1983 to 01/03/1984
Length of summary period: 13 sampling intervals (91 days)
Percent summary period with ppt measurements: 24.5
Percent summary period with chemical samples or no ppt: 20.8
Percent of total measured ppt with chemical samples: 97.0
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 90.2
Total measured ppt, in mm: 331.5

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.10	3.7	4.23	0.01	0.012	0.092	0.012	0.01	0.18	0.01	0.38	9.12E-04
10 percentile	1.06	3.8	4.30	.02	.014	.097	.014	.02	.19	.03	.42	1.24E-03
25 percentile	3.95	4.8	4.68	.04	.026	.128	.022	.04	.24	.21	.67	3.63E-03
50 percentile	18.00	10.3	4.89	.10	.040	.237	.028	.07	.35	.56	.99	1.29E-02
75 percentile	42.05	19.8	5.44	.24	.067	.323	.095	.22	.51	1.26	1.95	2.09E-02
90 percentile	77.50	37.2	5.95	.37	.123	.765	.272	.61	.99	2.21	4.61	5.25E-02
Maximum value	96.50	41.2	6.04	.40	.127	.822	.274	.67	1.08	2.44	5.02	5.89E-02
Volume-weighted mean	NA	6.5	5.13	.08	.029	.190	.055	.07	.33	.29	.74	7.46E-03
Arithmetic mean	25.50	13.0	5.02	.15	.051	.292	.081	.17	.43	.75	1.51	1.59E-02
No. of samples	13	11	11	11	11	11	11	11	11	11	11	11
Total load, g/m^2	NA	NA	NA	0.026	0.009	0.061	0.018	0.021	0.106	0.093	0.239	2.4E-03
Maximum interval load, g/m^2	NA	NA	NA	.010	.002	.016	.010	.004	.025	.015	.037	6.8E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.75	0.60	-.62	-.60	-.38	-.53	-.62	-.29	-.67	-.82	-0.60
P-level		.001	.010	.008	.010	.102	.024	.008	.212	.004	.001	.010



Percentage composition of major ions for site GA50.

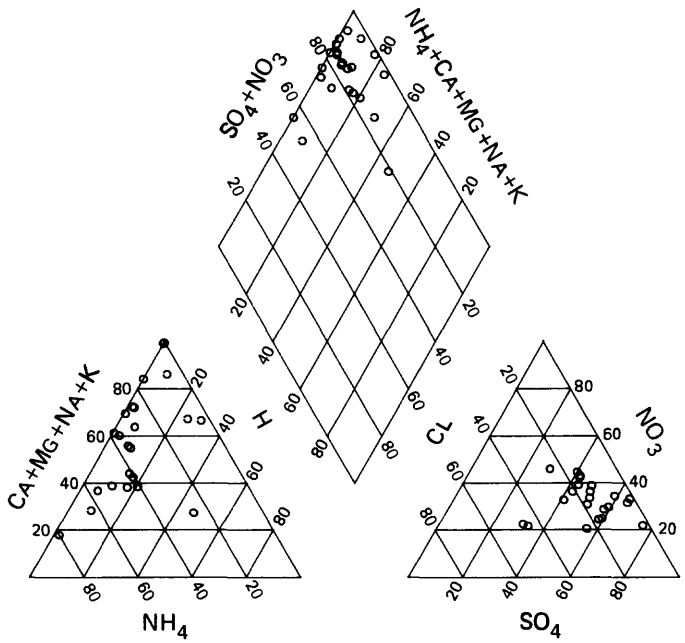
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Craters of Moon, Idaho — Latitude: 43°27'48" Longitude: 113°33'31"
CAL number: ID03 — Map ID number 25:
ADS number: 019a00 — Station summary period: 12/28/1982 to 01/03/1984
Station altitude above mean sea level, in meters: 1806 — Length of summary period: 50 sampling intervals (371 days)

Number of sampling intervala (days in parenthesis):			Percent summary period with ppt measurements:	100.0
-- With ppt maasurements:	50	(371)	Percent summary period with chemical samples or no ppt:	50.9
-- When ppt occurred:	46	(343)	Percent of total measured ppt with chemical samples:	57.8
-- When ppt did not occur:	4	(28)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	90.5
-- When sampla volume was substituted for missing rain gage:	2	(14)		
-- With chemical samples:	23	(161)	Total measured ppt, in mm: 493.9	

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	1.9	5.22	0.03	0.007	0.017	0.004	0.01	0.01	0.16	0.19	1.86E-04
10 percentile	.30	2.5	5.25	.06	.008	.019	.005	.01	.01	.18	.30	2.65E-04
25 percentile	1.22	3.3	5.52	.09	.015	.023	.009	.07	.07	.37	.43	7.41E-04
50 percentile	6.75	5.8	5.69	.13	.024	.084	.026	.19	.17	.56	.63	2.04E-03
75 percentile	16.47	12.2	6.13	.69	.097	.260	.084	.34	.36	.90	.95	3.02E-03
90 percentile	26.26	21.1	6.58	1.24	.357	1.001	.120	.51	.48	1.58	2.07	5.58E-03
Maximum value	48.00	39.6	6.73	4.79	.438	1.790	.235	.60	2.83	2.40	2.86	6.03E-03
Voluma-waighted mean	NA	5.8	5.57	.20	.031	.092	.025	.21	.17	.54	.59	2.68E-03
Arithmetic mean	9.88	9.2	5.82	.53	.085	.255	.051	.22	.31	.75	.85	2.24E-03
No. of samples	50	23	23	23	23	23	23	23	23	23	23	23
Total load, g/m^2	NA	NA	NA	0.058	0.009	0.026	0.007	0.060	0.048	0.155	0.168	7.6E-04
Maximum interval load, g/m^2	NA	NA	NA	.012	.001	.005	.001	.011	.007	.022	.017	1.8E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.46	-0.36	-.66	-.68	-.64	-.51	-.01	-.42	-.39	-.49	0.36
P-level		.002	.017	.000	.000	.000	.001	.958	.006	.010	.001	.017



Percentage composition of major ions for site ID03.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = cantimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

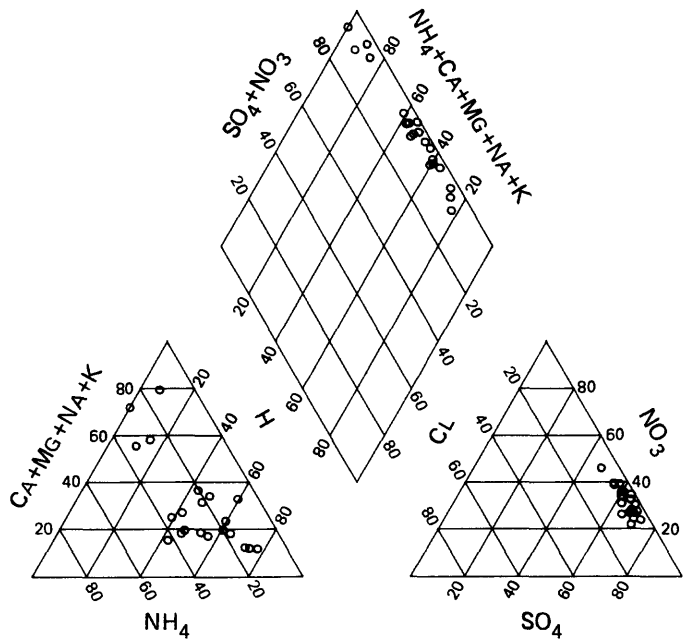
STATION: Bondville, Illinois — Latitude: 40°03'12" Longitude: 88°22'19"
CAL number: IL11 — Map ID number: 27
ADS number: 020a00
Station altitude above maan sea level, in meters: 212
Number of sampling intervals (days in parenthesis):

-- With ppt measurements:	53	(371)
-- When ppt occurred:	49	(343)
-- When ppt did not occur:	4	(28)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	21	(147)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 53 sampling intervals (371 days)

Percent summary period with ppt measuremants:	100.0
Percant summary pariod with chemical samples or no ppt:	47.2
Percant of total measured ppt with chemical samples:	51.3
Percent of total measured ppt in raingage that was collactad in the wet-sampla bucket:	95.7
Total measured ppt, in mm:	962.3

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	15.5	3.89	0.04	0.008	0.021	0.007	0.08	0.06	0.59	1.40	3.02E-04
10 percentile	.00	16.7	4.05	.07	.011	.021	.010	.13	.07	.94	1.50	9.60E-03
25 percentile	.30	18.8	4.21	.18	.026	.045	.022	.26	.10	1.43	2.01	2.79E-02
50 percentile	11.70	26.4	4.42	.32	.038	.060	.032	.39	.14	1.84	2.99	3.80E-02
75 percentile	25.80	37.1	4.55	.79	.077	.082	.064	.57	.17	2.69	3.94	6.12E-02
90 percentile	44.96	62.3	5.03	3.03	.316	.342	.253	1.72	.64	6.03	8.94	8.91E-02
Maximum value	124.00	73.5	6.52	6.54	.706	1.202	.391	3.12	1.02	12.20	12.46	1.29E-01
Volume-weighted mean	NA	26.9	4.34	.29	.035	.064	.034	.43	.13	1.59	2.85	4.58E-02
Arithmetic mean	18.16	31.5	4.50	.85	.091	.132	.068	.61	.21	2.59	3.72	4.53E-02
No. of samples	53	21	21	21	21	21	21	21	21	21	21	21
Total load, g/m^2	NA	NA	NA	0.142	0.017	0.032	0.017	0.213	0.065	0.784	1.406	2.3E-02
Maximum interval losd, g/m^2	NA	NA	NA	.035	.005	.010	.005	.069	.016	.169	.335	4.2E-03
Correlation with ppt volume:		Cond	pH	Cs	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.17	-0.19	-.56	-.54	-.24	-.34	-.07	-.28	-.47	-.25	0.19
P-level		.277	.227	.000	.001	.123	.030	.650	.083	.003	.116	.227



Percentage composition of major ions for site IL11.

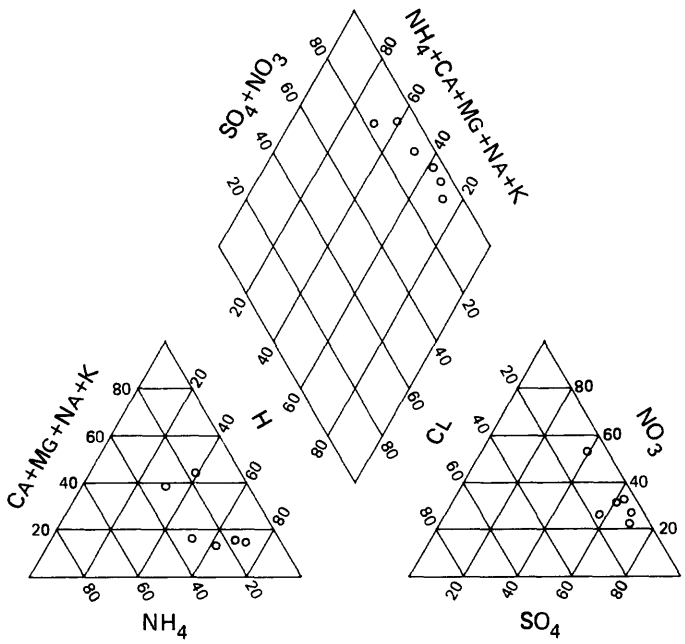
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Bondville, Illinois — Latitude: 40°03'12" Longitude: 88°22'19"
CAL number: 11IL — Map ID number: 27
ADS number: 020c00
Station altitude above mean sea level, in meters: 212
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 15 (105)
-- When ppt occurred: 14 (98)
-- When ppt did not occur: 1 (7)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 6 (42)

Station summary period: 09/20/1983 to 01/03/1984
Length of summary period: 15 sampling intervals (105 days)
Percent summary period with ppt measurements: 28.3
Percent summary period with chemical samples or no ppt: 13.2
Percent of total measured ppt with chemical samples: 34.4
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 82.6
Total measured ppt, in mm: 364.2

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	13.1	4.32	0.04	0.010	0.024	0.008	0.08	0.10	0.58	1.04	1.82E-02
10 percentile	.18	13.1	4.32	.04	.010	.024	.008	.08	.10	.58	1.04	1.82E-02
25 percentile	2.30	13.8	4.42	.08	.011	.028	.016	.13	.11	.78	1.21	2.13E-02
50 percentile	17.50	17.3	4.59	.11	.016	.042	.022	.23	.12	1.31	1.70	2.57E-02
75 percentile	28.70	23.0	4.67	.21	.060	.164	.039	.31	.24	1.54	2.43	3.80E-02
90 percentile	77.20	25.6	4.74	.29	.060	.307	.048	.48	.52	1.82	2.49	4.79E-02
Maximum value	124.00	25.6	4.74	.29	.060	.307	.048	.48	.52	1.82	2.49	4.79E-02
Volume-weighted mean	NA	17.0	4.56	.11	.021	.084	.019	.22	.18	.97	1.71	2.75E-02
Arithmetic mean	24.28	18.2	4.56	.14	.029	.093	.026	.24	.19	1.22	1.77	2.91E-02
No. of samples	15	6	6	6	6	6	6	6	6	6	6	6
Total load, g/m^2	NA	NA	NA	0.014	0.003	0.011	0.002	0.028	0.023	0.122	0.214	3.4E-03
Maximum interval load, g/m^2	NA	NA	NA	.006	.001	.007	.001	.010	.011	.031	.065	1.1E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.20	0.20	-.55	-.73	-.20	-.73	.14	-.28	-.60	-.07	-0.20
P-level		.573	.573	.126	.039	.573	.039	.702	.444	.091	.851	0.573



Percentage composition of major ions for site 11IL.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Argonne, Illinois — Latitude: 41°42'04" Longitude: 87°59'43"

CAL number: IL19 — Map ID number: 29

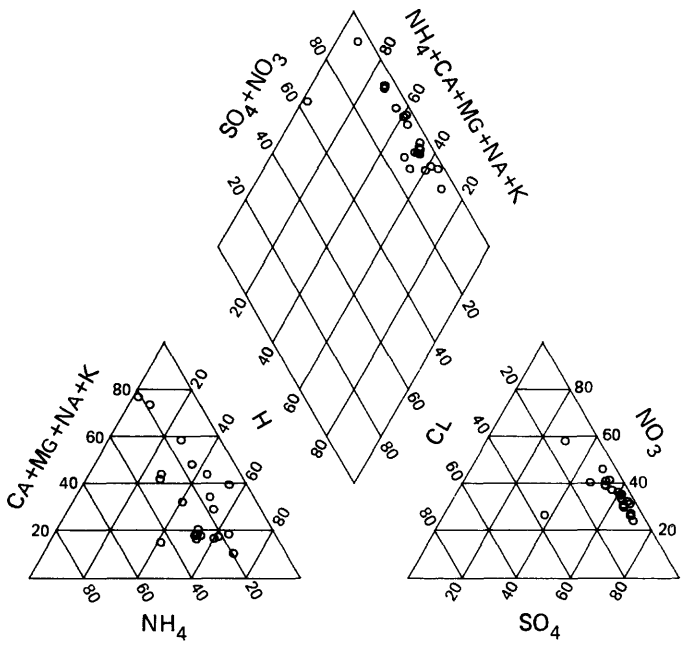
ADS number: 021a01 — Station summary period: 12/21/1982 to 01/03/1984

Station altitude above mean sea level, in meters: 229 — Length of summary period: 52 sampling intervals (378 days)

Number of sampling intervals (days in parenthesis):

-- With ppt measurements:	52	(378)	Percent summary period with ppt measurements: 101.9
-- When ppt occurred:	51	(371)	Percent summary period with chemical samples or no ppt: 43.7
-- When ppt did not occur:	1	(7)	Percent of total measured ppt with chemical samples: 33.1
-- When sample volume was substituted for missing rain gage:	2	(21)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 101.9
-- With chemical samples:	21	(155)	Total measured ppt, in mm: 1198.0

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	12.7	3.60	0.08	0.021	0.031	0.013	0.06	0.08	0.78	0.81	4.79E-03
10 percentile	.51	14.7	3.84	.11	.024	.050	.015	.15	.08	.88	1.61	8.77E-03
25 percentile	2.87	17.9	4.18	.15	.035	.059	.022	.26	.12	1.59	2.29	2.66E-02
50 percentile	12.45	29.0	4.37	.34	.070	.088	.043	.44	.19	2.26	2.83	4.27E-02
75 percentile	31.80	50.1	4.57	.64	.146	.168	.058	.69	.35	4.07	4.79	6.61E-02
90 percentile	66.52	72.5	5.15	1.32	.402	.435	.092	1.14	1.03	6.36	7.20	1.44E-01
Maximum value	134.70	139.6	5.32	1.87	.451	2.123	.127	1.77	2.97	10.66	11.37	2.51E-01
Volume-weighted mean	NA	26.9	4.35	.27	.052	.095	.042	.44	.16	1.88	2.73	4.44E-02
Arithmetic mean	23.04	38.2	4.39	.51	.117	.215	.046	.54	.39	3.04	3.71	5.85E-02
No. of samples	52	21	21	21	21	21	21	21	21	21	21	21
Total load, g/m^2	NA	NA	NA	0.105	0.021	0.038	0.017	0.175	0.065	0.744	1.084	1.8E-02
Maximum interval load, g/m^2	NA	NA	NA	.038	.005	.013	.008	.047	.012	.147	0.288	3.9E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.23	0.01	-.53	-.63	-0.37	-.42	-.16	-.45	-.37	-.25	-0.01
P-level		.155	.928	.001	.000	.022	.008	.304	.005	.020	.109	.928



Percentage composition of major ions for site IL19.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Salem, Illinois — Latitude: 38°38'36" Longitude: 88°58'01"
CAL number: IL47 — Map ID number: 30
ADS number: 161a02
Station altitude above mean sea level, in meters: 173
Number of sampling intervals (days in parenthesis):

-- With ppt measurements:	51	(371)
-- When ppt occurred:	44	(308)
-- When ppt did not occur:	7	(63)
-- When sample volume was substituted for missing rain gage:	2	(14)
-- With chemical samples:	28	(196)

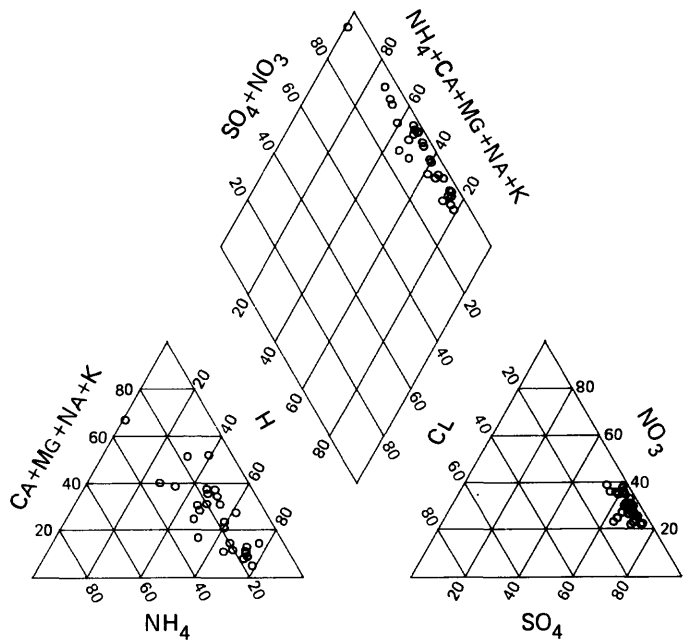
Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 51 sampling intervals (371 days)

Percent summary period with ppt measurements:	100.0
Percent summary period with chemical samples or no ppt:	69.8
Percent of total measured ppt with chemical samples:	61.7
Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	105.2

Total measured ppt, in mm: 1027.4

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	11.0	3.45	0.01	0.005	0.017	0.005	0.07	0.06	0.57	1.22	1.41E-03
10 percentile	.00	14.6	4.00	.05	.010	.021	.009	.11	.06	.92	1.41	1.73E-02
25 percentile	.30	19.6	4.29	.08	.016	.041	.013	.15	.08	1.06	1.77	3.29E-02
50 percentile	11.20	22.3	4.41	.23	.036	.066	.031	.25	.15	1.35	2.14	3.85E-02
75 percentile	28.70	33.2	4.48	.43	.060	.126	.045	.48	.23	2.46	4.45	5.07E-02
90 percentile	60.84	53.4	4.76	1.29	.128	.291	.091	.78	.33	3.53	5.86	1.01E-01
Maximum value	141.00	230.0	5.85	3.46	.522	1.004	.390	2.38	2.22	11.27	28.03	3.55E-01
Volume-weighted mean	NA	23.7	4.34	.14	.022	.059	.022	.25	.12	1.20	2.24	4.52E-02
Arithmetic mean	20.15	34.1	4.39	.45	.062	.123	.048	.40	.23	2.01	3.76	5.76E-02

No. of samples	51	28	28	28	28	28	28	28	28	28	28	28
Total load, g/m^2	NA	NA	NA	0.090	0.014	0.037	0.014	0.158	0.078	0.762	1.421	2.9E-02
Maximum interval load, g/m^2	NA	NA	NA	.012	.001	.005	.002	.029	.016	.103	.245	6.3E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.26	0.03	-.62	-.67	-.45	-.45	-.38	-.37	-.50	-.41	-0.03
P-level		.050	.812	.000	.000	.001	.001	.005	.007	.000	.002	.812



Percentage composition of major ions for site IL47.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Huntington, Indiana — Latitude: 40°50'24" Longitude: 85°27'50"
CAL number: IN20 — Map ID number: 32
ADS number: 343a00
Station altitude above mean sea level, in meters: 244
Number of sampling intervals (days in parenthesis):

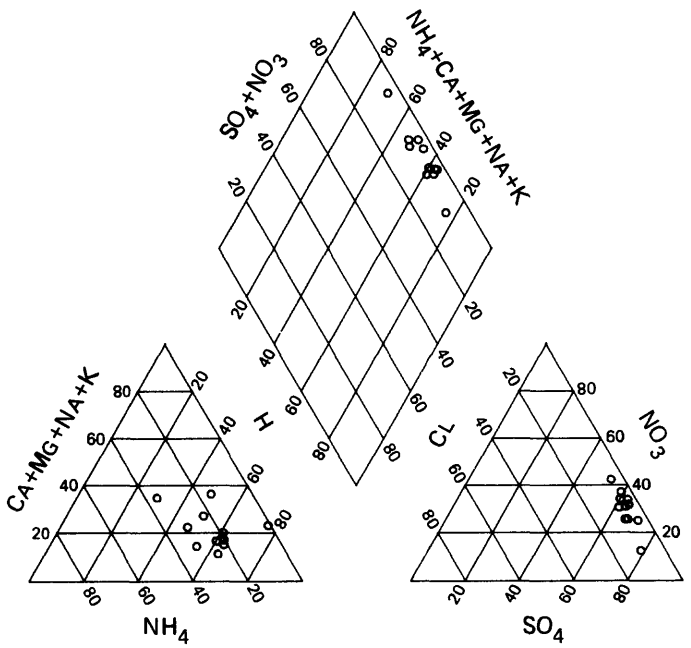
-- With ppt measurements:	18	(134)
-- When ppt occurred:	18	(134)
-- When ppt did not occur:	0	(0)
-- When sample volume was substituted for missing rain gage:	1	(7)
-- With chemical samples:	11	(77)

Station summary period: 08/22/1983 to 01/03/1984
Length of summary period: 18 sampling intervals (134 days)

Percent summary period with ppt measurements:	36.1
Percent summary period with chemical samples or no ppt:	20.8
Percent of total measured ppt with chemical samples:	74.6
Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	65.6

Total measured ppt, in mm: 402.2

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	11.8	3.92	0.05	0.010	0.019	0.010	0.01	0.08	0.40	1.13	2.14E-02
10 percentile	.00	12.3	3.98	.05	.011	.020	.011	.03	.08	.48	1.19	2.16E-02
25 percentile	3.97	15.3	4.32	.08	.017	.033	.019	.15	.11	.83	1.61	2.29E-02
50 percentile	19.75	25.6	4.40	.16	.032	.084	.030	.28	.15	1.67	2.29	3.98E-02
75 percentile	37.65	28.9	4.64	.31	.065	.098	.044	.49	.19	2.12	3.39	4.79E-02
90 percentile	50.70	49.0	4.67	.42	.073	.150	.107	.69	.25	3.55	5.15	1.08E-01
Maximum value	66.00	52.8	4.67	.44	.074	.159	.120	.73	.27	3.82	5.48	1.20E-01
Volume-weighted mean	NA	22.4	4.42	.14	.027	.067	.041	.24	.14	1.28	2.24	3.77E-02
Arithmetic mean	22.34	25.4	4.42	.19	.037	.078	.038	.33	.15	1.63	2.62	4.38E-02
No. of samples	18	11	11	11	11	11	11	11	11	11	11	11
Total load, g/m^2	NA	NA	NA	0.041	0.008	0.020	0.012	0.071	0.042	0.385	0.672	1.1E-02
Maximum interval load, g/m^2	NA	NA	NA	.009	.001	.004	.006	.013	.008	.095	.148	2.1E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.27	0.16	-.67	-.73	-.35	-.20	-.66	-.39	-.49	-.45	-0.16
P-level		.243	.484	.004	.002	.139	.392	.005	.100	.036	.052	.484



Percentage composition of major ions for site IN20.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

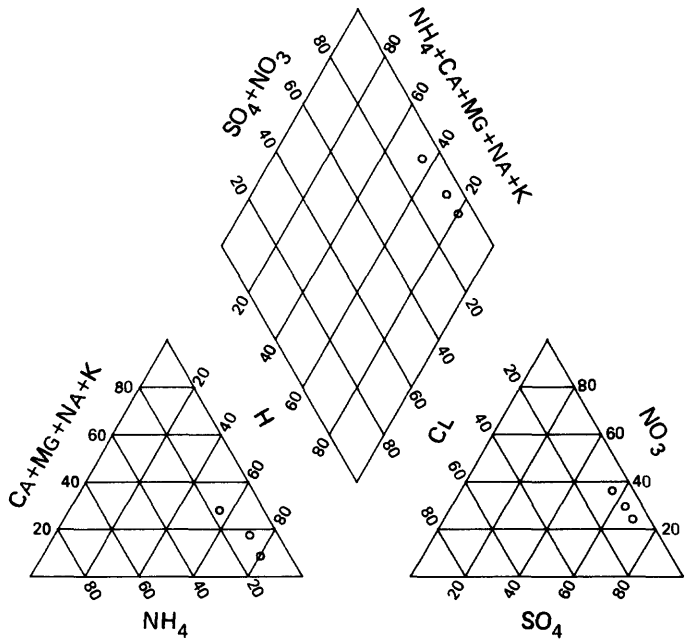
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Perryville, Kentucky — Latitude: 37°40'39" Longitude: 84°57'25"
CAL number: KY03 — Map ID number: 34
ADS number: 346a00
Station altitude above mean sea level, in meters: 277
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 4 (35)
-- When ppt occurred: 4 (35)
-- When ppt did not occur: 0 (0)
-- When sample volume was substituted for missing rain gage: 1 (14)
-- With chemical samples: 3 (28)

Station summary period: 11/29/1983 to 01/03/1984
Length of summary period: 4 sampling intervals (35 days)
Percent summary period with ppt measurements: 9.4
Percent summary period with chemical samples or no ppt: 7.5
Percent of total measured ppt with chemical samples: 99.0
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 98.3

Total meesured ppt, in mm: 81.9

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.80	12.9	4.24	0.03	0.006	0.022	0.006	0.07	0.07	0.49	1.07	2.82E-02
10 percentile	.80	12.9	4.24	.03	.006	.022	.006	.07	.07	.49	1.07	2.82E-02
25 percentile	3.47	12.9	4.24	.03	.006	.022	.006	.07	.07	.49	1.07	2.82E-02
50 percentile	12.25	28.7	4.25	.17	.022	.066	.025	.15	.18	1.49	2.48	5.62E-02
75 percentile	45.70	35.9	4.55	.36	.051	.144	.040	.31	.31	2.55	3.01	5.75E-02
90 percentile	56.60	35.9	4.55	.36	.051	.144	.040	.31	.31	2.55	3.01	5.75E-02
Maximum value	56.60	35.9	4.55	.36	.051	.144	.040	.31	.31	2.55	3.01	5.75E-02
Volume-weighted mean	NA	18.8	4.43	.10	.016	.048	.014	.12	.12	.96	1.58	3.69E-02
Arithmetic mean	20.47	25.8	4.35	.19	.026	.077	.024	.18	.19	1.51	2.18	4.73E-02
No. of samples	4	3	3	3	3	3	3	3	3	3	3	3
Total load, g/m^2	NA	NA	NA	0.008	0.001	0.004	0.001	0.010	0.010	0.078	0.128	3.0E-03
Maximum interval load, g/m^2	NA	NA	NA	.005	.001	.002	.001	.004	.004	.033	.061	1.6E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.33	0.33	-.33	-.33	-.33	-.33	-.33	-.33	-.33	-.33	-0.33
P-level		.602	.602	.602	.602	.602	.602	.602	.602	.602	.602	.602



Percentage composition of major ions for site KY03.

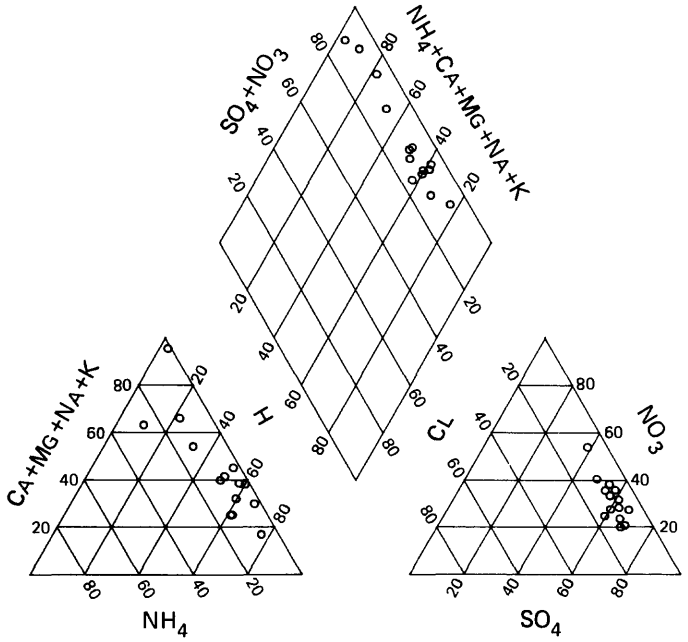
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Lilley Cornett Woods, Kentucky — Latitude: 37°04'40" Longitude: 82°59'37"
CAL number: KY22 — Map ID number: 35
ADS number: 347a00
Station altitude above mean sea level, in meters: 335
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 17 (119)
-- When ppt occurred: 17 (119)
-- When ppt did not occur: 0 (0)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 14 (98)

Station summary period: 09/06/1983 to 01/03/1984
Length of summary period: 17 sampling intervals (119 days)
Percent summary period with ppt measurements: 32.1
Percent summary period with chemical samples or no ppt: 26.4
Percent of total measured ppt with chemical samples: 92.7
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 94.8
Total measured ppt, in mm: 220.0

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	5.0	4.00	0.07	0.010	0.019	0.004	0.01	0.07	0.28	0.52	1.35E-03
10 percentile	.64	6.2	4.13	.07	.010	.020	.005	.01	.07	.29	.59	4.93E-03
25 percentile	5.35	8.2	4.48	.09	.014	.024	.008	.01	.10	.49	.81	1.32E-02
50 percentile	14.50	12.5	4.78	.15	.022	.050	.027	.05	.13	.86	1.31	1.64E-02
75 percentile	17.15	24.7	4.88	.60	.136	.133	.059	.13	.32	1.95	2.50	3.27E-02
90 percentile	27.92	40.0	5.47	1.20	.141	.301	.107	.43	.57	3.72	4.14	7.75E-02
Maximum value	30.00	53.4	5.87	1.28	.142	.321	.126	.62	.76	4.36	5.17	1.00E-01
Volume-weighted mean	NA	12.4	4.69	.21	.036	.054	.027	.06	.14	.85	1.24	2.05E-02
Arithmetic mean	12.94	16.6	4.76	.40	.057	.097	.038	.11	.21	1.32	1.71	2.57E-02
No. of samples	17	14	14	14	14	14	14	14	14	14	14	14
Total load, g/m^2	NA	NA	NA	0.044	0.007	0.011	0.006	0.012	0.028	0.173	0.252	4.2E-03
Maximum interval load, g/m^2	NA	NA	NA	.008	.002	.002	.002	.002	.004	.034	.037	9.7E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.38	0.19	-.76	-.63	-.66	-.63	-.39	-.63	-.53	-.57	-0.19
P-level		.062	.351	.000	.002	.001	.002	.058	.002	.009	.004	.351



Percentage composition of major ions for site KY22.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Clark State Fish Hatchery, Kentucky — Latitude: 38°07'06" Longitude: 83°32'49"
CAL number: KY35 — Map ID number: 36
ADS number: 348a00
Station altitude above mean sea level, in meters: 204
Number of sampling intervals (days in parenthesis):

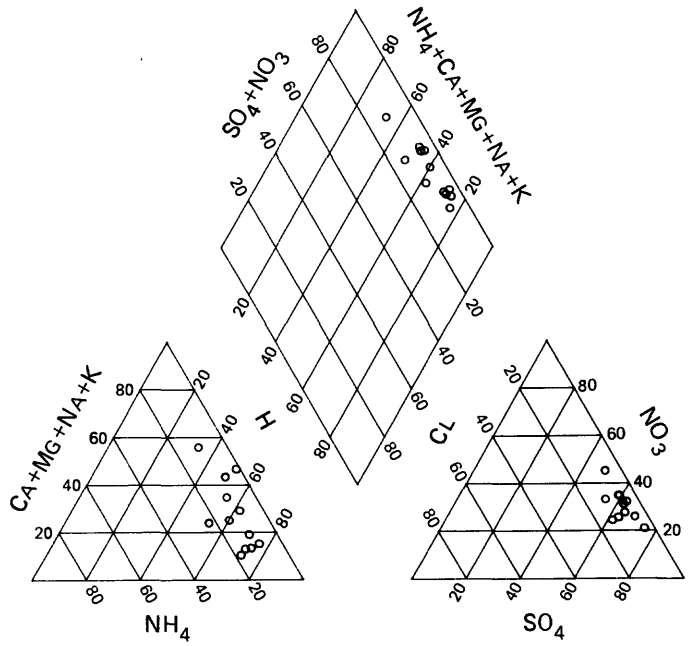
-- With ppt measurements:	18	(126)
-- When ppt occurred:	17	(119)
-- When ppt did not occur:	1	(7)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	12	(84)

Station summary period: 08/30/1983 to 01/03/1984
Length of summary period: 18 sampling intervals (126 days)

Percent summary period with ppt measurements:	34.0
Percent summary period with chemical samples or no ppt:	24.5
Percent of total measured ppt with chemical samples:	85.1
Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	97.9

Total measured ppt, in mm: 283.6

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	8.5	4.06	0.06	0.012	0.020	0.011	0.01	0.07	0.49	0.88	1.02E-02
10 percentile	.27	8.8	4.08	.06	.012	.025	.011	.02	.07	.55	.90	1.18E-02
25 percentile	4.02	12.1	4.29	.06	.014	.045	.012	.06	.10	.77	1.14	2.12E-02
50 percentile	9.40	20.3	4.46	.17	.028	.060	.021	.09	.13	1.01	1.50	3.43E-02
75 percentile	18.10	29.1	4.68	.24	.041	.112	.042	.26	.19	1.82	2.46	5.07E-02
90 percentile	35.81	42.9	4.94	.61	.088	.223	.074	.36	.35	2.50	5.02	8.27E-02
Maximum value	95.30	46.6	4.99	.76	.100	.242	.085	.38	.37	2.73	5.64	8.71E-02
Volume-weighted mean	NA	21.8	4.39	.10	.020	.064	.019	.16	.13	1.16	1.77	4.09E-02
Arithmetic mean	15.76	21.7	4.48	.20	.034	.084	.029	.15	.16	1.24	2.03	3.88E-02
No. of samples	18	12	12	12	12	12	12	12	12	12	12	12
Total load, g/m^2	NA	NA	NA	0.025	0.005	0.015	0.005	0.038	0.032	0.279	0.428	9.9E-03
Maximum interval load, g/m^2	NA	NA	NA	.006	.001	.006	.001	.022	.013	.137	.179	4.9E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.06	0.06	-.76	-.68	-.41	-.41	-.15	-.43	-.28	-.09	-0.06
P-level		.784	.784	.001	.002	.064	.064	.491	.054	.215	.681	.784



Percentage composition of major ions for site KY35.

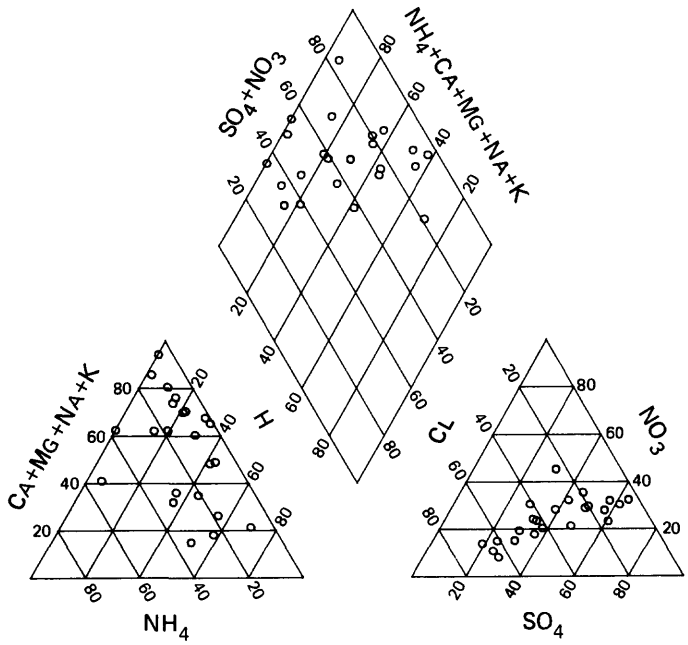
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Iberie, Louisiana — Latitude: 29°55'47" Longitude: 91°42'54"
CAL number: LA12 — Map ID number: 37
ADS number: 275a00
Station altitude above mean sea level, in meters: 6
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 49 (364)
-- When ppt occurred: 47 (350)
-- When ppt did not occur: 2 (14)
-- When sample volume was substituted for missing rain gage: 1 (7)
-- With chemical samples: 23 (169)

Station summary period: 12/21/1982 to 01/03/1984
Length of summary period: 50 sampling intervals (378 days)
Percent summary period with ppt measurements: 98.1
Percent summary period with chemical samples or no ppt: 49.3
Percent of total measured ppt with chemical samples: 55.0
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 99.5
Total measured ppt, in mm: 1728.6

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	5.7	4.23	0.02	0.008	0.041	0.008	0.01	0.07	0.42	0.47	4.07E-04
10 percentile	.10	7.7	4.34	.04	.017	.078	.015	.03	.11	.45	.52	1.25E-03
25 percentile	4.90	8.6	4.76	.07	.033	.152	.021	.07	.31	.48	.62	7.24E-03
50 percentile	26.90	12.0	4.92	.09	.056	.332	.031	.12	.55	.57	.78	1.20E-02
75 percentile	55.15	25.0	5.14	.20	.102	.756	.068	.37	1.39	1.80	2.21	1.74E-02
90 percentile	90.70	43.5	6.03	1.01	.308	2.180	.190	.96	3.75	3.19	5.35	4.73E-02
Maximum velue	150.10	75.7	6.39	2.06	.821	4.705	.651	4.20	8.21	5.57	8.75	5.89E-02
Volume-weighted mean	NA	11.6	4.76	.09	.042	.286	.026	.13	.50	.71	0.89	1.75E-02
Arithmetic mean	35.28	18.4	5.01	.31	.116	.743	.078	.39	1.28	1.22	1.71	1.64E-02
No. of samples	49	23	23	23	23	23	23	23	23	23	23	23
Total load, g/m^2	NA	NA	NA	0.087	0.040	0.271	0.024	0.121	0.471	0.676	0.848	1.7E-02
Maximum interval load, g/m^2	NA	NA	NA	.011	.005	.041	.002	.015	.074	.153	.152	4.7E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.52	-0.26	-0.72	-.58	-.51	-.77	-.38	-.51	-.42	-.45	0.26
P-level		.001	.081	.000	.000	.001	.000	.013	.001	.006	.003	.081



Percentage composition of major ions for site LA12.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

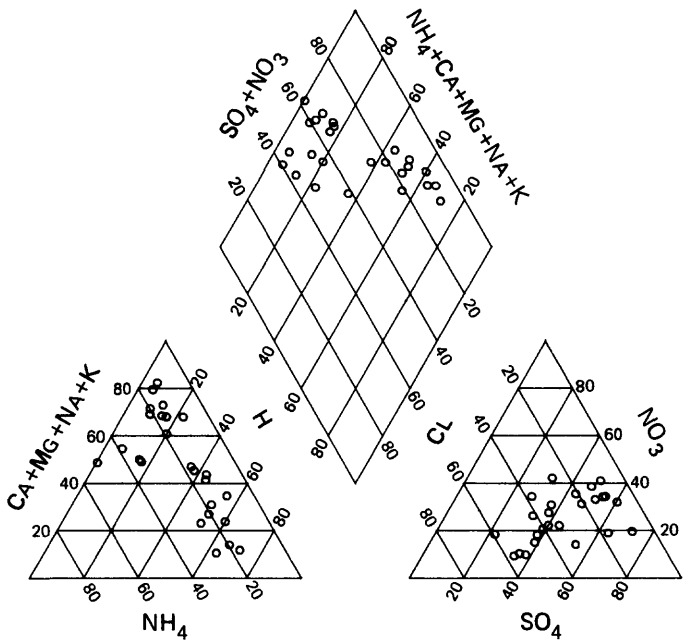
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Southeast Reasearch Station, Louisiana — Latitude: 30°48'41" Longitude: 90°10'51"
CAL number: LA30 — Map ID number: 38
ADS number: 349a00
Station altitude above mean sea level, in meters: 78
Number of sampling intarvals (days in parenthesis):
-- With ppt measuremants: 46 (343)
-- When ppt occurred: 43 (324)
-- Whan ppt did not occur: 3 (19)
-- Whan sampla volume was substituted for missing rain gaga: 0 (0)
-- With chamical samples: 25 (189)

Station summary period: 01/18/1983 to 01/03/1984
Length of summary period: 47 sampling intervals (350 days)
Percent summary period with ppt measurements: 92.4
Percent summary period with chemical samples or no ppt: 56.1
Parcent of total measured ppt with chemical samples: 58.2
Percent of total measured ppt in rsingage that was collected in the wet-sample bucket: 98.6

Total measured ppt, in mm: 1855.1

Statistical measures	Measurad ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	6.8	4.29	0.02	0.006	0.044	0.008	0.05	0.07	0.41	0.39	9.12E-04
10 percentile	.17	8.5	4.43	.03	.015	.063	.012	.09	.17	.43	.68	3.66E-03
25 percentile	9.37	10.4	4.58	.08	.032	.175	.025	.15	.27	.57	.97	7.50E-03
50 percentile	29.85	13.9	4.82	.13	.052	.314	.042	.20	.47	.88	1.22	1.51E-02
75 percentile	62.70	19.3	5.12	.21	.111	.819	.058	.29	1.37	1.31	1.51	2.60E-02
90 percentile	89.91	23.9	5.44	.39	.156	1.101	.107	.42	2.01	1.72	2.62	3.74E-02
Maximum value	185.90	29.1	6.04	.60	.199	1.350	.289	2.03	2.32	2.29	3.20	5.13E-02
Volume-weightad mean	NA	12.4	4.82	.12	.053	.360	.041	.22	.63	.76	1.10	1.52E-02
Arithmetic mean	40.33	15.0	4.90	.16	.071	.467	.054	.28	.79	.98	1.35	1.74E-02
No. of samples	46	25	25	25	25	25	25	25	25	25	25	25
Total load, g/m^2	NA	NA	NA	0.129	0.057	0.388	0.044	0.242	0.679	0.817	1.193	1.6E-02
Maximum interval load, g/m^2	NA	NA	NA	.024	.010	.072	.012	.070	.124	.110	0.160	2.6E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.43	0.07	-.33	-.37	-.24	-.31	-.35	-.22	-.42	-.30	-0.07
P-level		.003	.624	.023	.011	.097	.030	.015	.129	.003	.038	.624



Percentage composition of major ions for site LA30.

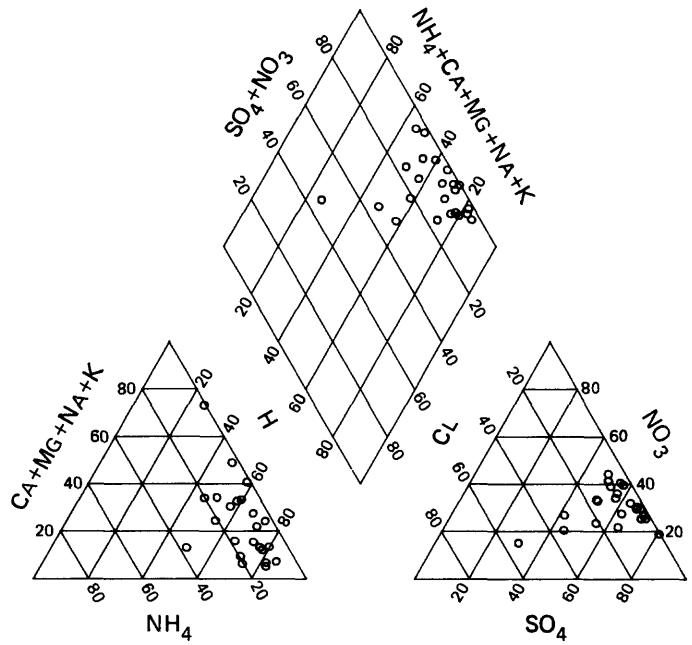
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Cadwell, Massachusetts — Latitude: 42°21'40" Longitude: 72°23'27"
CAL number: MA08 — Map ID number: 39
ADS number: 276a00 — Station summary period: 12/28/1982 to 01/03/1984
Station altitude above mean sea level, in meters: 283 — Length of summary period: 52 sampling intervals (371 days)
Number of sampling intervals (days in parenthesis): — Percent summary period with ppt measurements: 100.0

-- With ppt measurements:	52	(371)	Percent summary period with chemical samples or no ppt:	47.2
-- When ppt occurred:	50	(357)	Percent of total measured ppt with chemical samples:	36.5
-- When ppt did not occur:	2	(14)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	93.2
-- When sample volume was substituted for missing rain gage:	0	(0)		
-- With chemical samples:	23	(161)	Total measured ppt, in mm: 1512.6	

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	4.8	3.67	0.01	0.009	0.015	0.007	0.01	0.01	0.22	0.48	7.59E-03
10 percentile	.74	6.2	3.70	.02	.012	.020	.009	.01	.05	.33	.49	1.17E-02
25 percentile	10.20	14.5	3.87	.03	.014	.054	.011	.03	.11	.74	1.23	2.29E-02
50 percentile	24.65	35.9	4.22	.10	.037	.112	.018	.22	.23	2.14	2.94	6.03E-02
75 percentile	44.30	76.3	4.64	.20	.099	.288	.048	.40	.44	3.83	6.22	1.35E-01
90 percentile	71.30	107.9	4.94	.73	.185	.525	.121	.96	.84	6.88	11.13	1.99E-01
Maximum value	79.30	121.5	5.12	1.45	.542	.986	.387	1.53	1.77	10.55	16.23	2.14E-01
Volume-weighted mean	NA	22.4	4.36	.07	.032	.158	.019	.13	.29	1.21	1.91	4.33E-02
Arithmetic mean	29.09	42.9	4.28	.22	.075	.203	.047	.31	.35	2.73	4.13	8.08E-02
No. of samples	52	23	23	23	23	23	23	23	23	23	23	23
Total load, g/m^2	NA	NA	NA	0.036	0.018	0.087	0.010	0.071	0.162	0.666	1.054	2.4E-02
Maximum interval load, g/m^2	NA	NA	NA	.003	.005	.040	.002	.008	.072	.066	0.115	3.1E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.68	0.62	-.76	-.68	-.38	-.63	-.61	-.38	-.71	-.69	-0.62
P-level		.000	.000	.000	.000	.010	.000	.000	.013	.000	.000	.000



Percentage composition of major ions for site MA08.

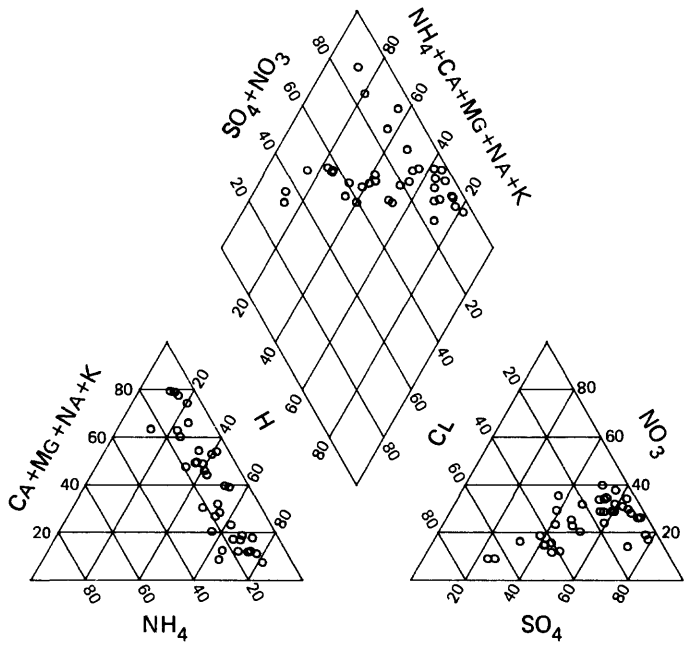
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Wye, Maryland — Latitude: 38°54'47" Longitude: 76°09'09"
CAL number: MD13 — Map ID number: 41
ADS number: 350a00
Station altitude above mean sea level, in meters: 6
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 43 (301)
-- When ppt occurred: 41 (287)
-- When ppt did not occur: 2 (14)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 36 (252)

Station summary period: 03/08/1983 to 01/03/1984
Length of summary period: 43 sampling intervals (301 days)
Percent summary period with ppt measurements: 81.1
Percent summary period with chemical samples or no ppt: 71.7
Percent of total measured ppt with chemical samples: 90.5
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 97.0
Total measured ppt, in mm: 1134.3

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	7.3	3.62	0.02	0.011	0.039	0.008	0.05	0.13	0.26	0.78	7.08E-03
10 percentile	1.30	10.6	3.82	.04	.019	.076	.016	.08	.19	.38	.86	1.11E-02
25 percentile	2.30	12.1	4.05	.05	.033	.124	.019	.09	.26	.58	1.06	1.59E-02
50 percentile	20.30	22.9	4.49	.08	.052	.289	.033	.17	.53	1.26	1.73	3.24E-02
75 percentile	44.50	57.4	4.80	.39	.135	.598	.075	.45	.90	2.73	4.77	8.87E-02
90 percentile	59.08	75.9	4.95	.95	.217	1.004	.153	.77	1.57	5.31	8.45	1.53E-01
Maximum value	106.70	117.2	5.15	1.34	.283	1.680	.342	1.44	2.73	7.26	13.36	2.40E-01
Volume-weighted mean	NA	21.0	4.45	.09	.053	.345	.027	.18	.63	1.04	1.82	3.57E-02
Arithmetic mean	26.38	34.2	4.43	.27	.088	.435	.059	.31	.70	2.07	3.38	5.87E-02
No. of samples	43	36	36	36	36	36	36	36	36	36	36	36
Total load, g/m^2	NA	NA	NA	0.091	0.054	0.354	0.028	0.183	0.650	1.066	1.869	3.7E-02
Maximum interval load, g/m^2	NA	NA	NA	.008	.011	.091	.004	.021	.165	0.093	0.148	3.6E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.38	0.29	-.55	-.46	-.27	-.54	-.36	-.19	-.46	-.44	-0.29
P-level		.001	.013	.000	.000	.024	.000	.002	.111	.000	.000	.013



Percentage composition of major ions for site MD13.

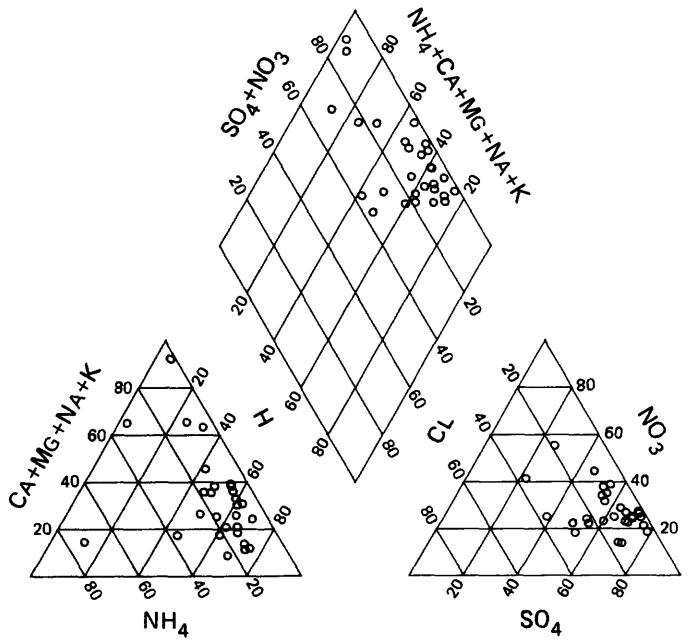
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Greenville Station, Maine — Latitude: 45°29'23" Longitude: 69°39'52"
CAL number: ME09 — Map ID number: 43
ADS number: 030a01 — Station summary period: 12/28/1982 to 01/03/1984
Station altitude above mean sea level, in meters: 322 — Length of summary period: 53 sampling intervals (371 days)
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 53 (371)
-- When ppt occurred: 53 (371)
-- When ppt did not occur: 0 (0)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 28 (198)

Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 52.8
Percent of total measured ppt with chemical samples: 60.3
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 89.4
Total measured ppt, in mm: 1453.4

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.30	2.4	4.14	0.01	0.003	0.022	0.002	0.01	0.01	0.11	0.05	1.58E-03
10 percentile	1.50	3.1	4.28	.01	.006	.022	.005	.01	.04	.12	.36	3.34E-03
25 percentile	11.15	5.8	4.43	.03	.010	.028	.008	.04	.08	.38	.62	5.67E-03
50 percentile	24.10	12.0	4.71	.06	.024	.057	.014	.07	.11	.63	.96	1.93E-02
75 percentile	37.25	21.5	5.26	.15	.042	.157	.030	.18	.29	1.09	2.06	3.71E-02
90 percentile	60.20	28.7	5.48	.33	.107	.241	.079	.57	.42	2.44	2.99	5.26E-02
Maximum value	102.60	50.6	5.80	2.13	.319	.976	.601	1.24	1.29	2.89	4.16	7.24E-02
Volume-weighted mean	NA	11.4	4.71	.06	.018	.077	.016	.12	.15	.57	1.02	1.94E-02
Arithmetic mean	27.42	14.4	4.82	.18	.042	.119	.044	.19	.20	.85	1.34	2.32E-02
No. of samples	53	28	28	28	28	28	28	28	28	28	28	28
Total load, g/m^2	NA	NA	NA	0.049	0.016	0.068	0.014	0.101	0.128	0.496	0.891	1.7E-02
Maximum interval load, g/m^2	NA	NA	NA	.007	.002	.016	.003	.024	.029	.050	.124	2.2E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.27	0.13	-.58	-.59	-.31	-.41	-.30	-.23	-.37	-.30	-0.13
P-level		.048	.333	.000	.000	.021	.003	.028	.092	.005	.026	.333



Percentage composition of major ions for site ME09.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitetion; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Acadia National Park, Maine — Latitude: 44°22'27" Longitude: 68°15'39"

CAL number: ME98 — Map ID number: 44

ADS number: 257s00 — Station summary period: 12/29/1982 to 01/03/1984

Station altitude sbove mean see level, in meters: 122 — Length of summary period: 54 sampling intervals (370 days)

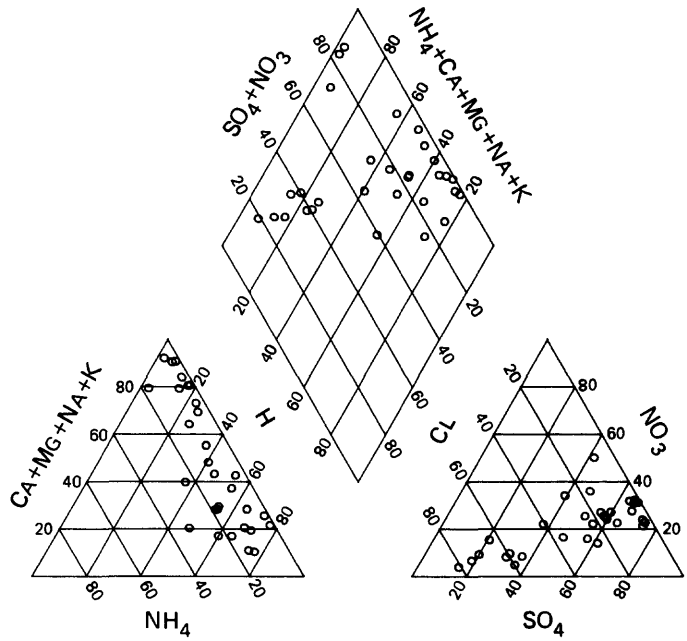
Number of sampling intervals (days in parenthesis):

-- With ppt measurements:	53	(365)
-- When ppt occurred:	52	(358)
-- When ppt did not occur:	1	(7)
-- When sample volume was substituted for missing rsin gage:	0	(0)
-- With chemical samples:	30	(210)

Percent summery period with ppt measurements:	98.4
Percent summary period with chemical samples or no ppt:	58.5
Percent of total measured ppt with chemical samples:	47.7
Percent of total measured ppt in reingage that was collected in the wet-sample bucket:	92.8

Totsl messured ppt, in mm: 1936.2

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium es Na, mg/L	Potassium es K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfete as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	3.6	3.72	0.01	0.011	0.040	0.008	0.01	0.01	0.12	0.32	1.10E-03
10 percentile	.70	7.0	3.95	.03	.016	.058	.011	.01	.03	.27	.59	6.15E-03
25 percentile	14.35	10.8	4.34	.04	.023	.109	.020	.05	.16	.47	.88	1.27E-02
50 percentile	29.20	19.8	4.63	.08	.067	.328	.030	.09	.60	.75	1.34	2.35E-02
75 percentile	55.25	33.4	4.89	.16	.230	.880	.074	.29	1.15	1.65	2.98	4.57E-02
90 percentile	76.62	64.3	5.21	1.11	.360	2.310	.154	.68	3.14	3.67	7.34	1.12E-01
Maximum value	180.60	90.5	5.96	1.76	.754	3.990	.634	1.11	7.19	7.73	12.46	1.91E-01
Volume-weighted mean	NA	17.0	4.64	.07	.099	.739	.038	.09	1.35	.65	1.28	2.26E-02
Arithmetic mean	36.53	27.2	4.63	.25	.137	.687	.070	.23	1.04	1.46	2.63	3.95E-02
No. of samples	53	30	30	30	30	30	30	30	30	30	30	30
Total load, g/m^2	NA	NA	NA	0.068	0.091	0.683	0.035	0.086	1.250	0.601	1.181	2.1E-02
Maximum interval load, g/m^2	NA	NA	NA	.010	.026	.233	.009	.011	0.425	.070	0.143	2.2E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.39	0.30	-.51	-.24	.01	-.37	-.41	.14	-.50	-.44	-0.30
P-level		.003	.021	.000	.069	.915	.004	.002	.284	.000	.001	.021



Percentage composition of major ions for site ME98.

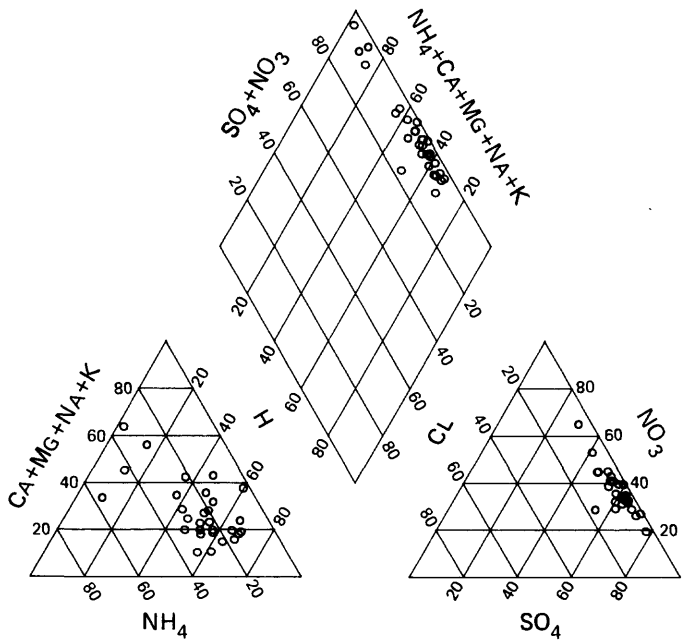
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Douglas Lake, Michigan — Latitude: 45°33'40" Longitude: 84°40'42"
CAL number: MI09 — Map ID number: 45
ADS number: 031a00 — Station summary period: 12/28/1982 to 01/03/1984
Station altitude above mean sea level, in meters: 233 — Length of summary period: 52 sampling intervals (371 days)

Number of sampling intervals (days in parenthesis):			Percent summary period with ppt measurements:	100.0
-- With ppt measurements:	52	(371)	Percent summary period with chemical samples or no ppt:	60.6
-- When ppt occurred:	50	(357)	Percent of total measured ppt with chemical samples:	65.6
-- When ppt did not occur:	2	(14)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	98.0
-- When sample volume was substituted for missing rain gage:	0	(0)		
-- With chemical samplea:	29	(211)	Total measured ppt, in mm: 910.5	

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	7.2	3.58	0.05	0.008	0.011	0.010	0.01	0.01	0.48	0.65	3.02E-03
10 percentile	.30	7.9	4.09	.08	.018	.015	.013	.10	.05	.65	.84	7.41E-03
25 percentile	4.05	14.7	4.29	.10	.021	.024	.016	.17	.08	1.13	1.31	2.26E-02
50 percentile	13.45	20.3	4.52	.18	.038	.038	.023	.33	.09	1.75	1.94	3.02E-02
75 percentile	25.90	29.8	4.64	.33	.074	.085	.073	.43	.18	2.53	3.14	5.08E-02
90 percentile	40.42	43.2	5.13	1.12	.201	.215	.166	.88	.45	4.32	4.50	8.13E-02
Maximum value	82.30	171.3	5.52	1.47	.343	.407	.298	2.39	.61	6.86	21.33	2.63E-01
Volume-weighted mean	NA	20.1	4.46	0.19	.038	.044	.041	.27	.11	1.42	1.97	3.45E-02
Arithmetic mean	17.51	27.8	4.54	0.33	.068	.077	.055	.41	.15	2.00	2.88	4.30E-02
No. of samples	52	29	29	29	29	29	29	29	29	29	29	29
Total load, g/m^2	NA	NA	NA	0.113	0.023	0.026	0.025	0.159	0.066	0.850	1.176	2.1E-02
Maximum interval load, g/m^2	NA	NA	NA	.014	.003	.006	.009	.023	.018	.100	.181	3.2E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.20	0.04	-.44	-.46	-.54	-.28	-.35	-.42	-.45	-.23	-0.04
P-level		.128	.750	.001	.001	.000	.037	.008	.002	.001	.078	.750



Percentage composition of major ions for site MI09.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Kellogg, Michigan — Latitude: 42°24'37" Longitude: 85°23'34"

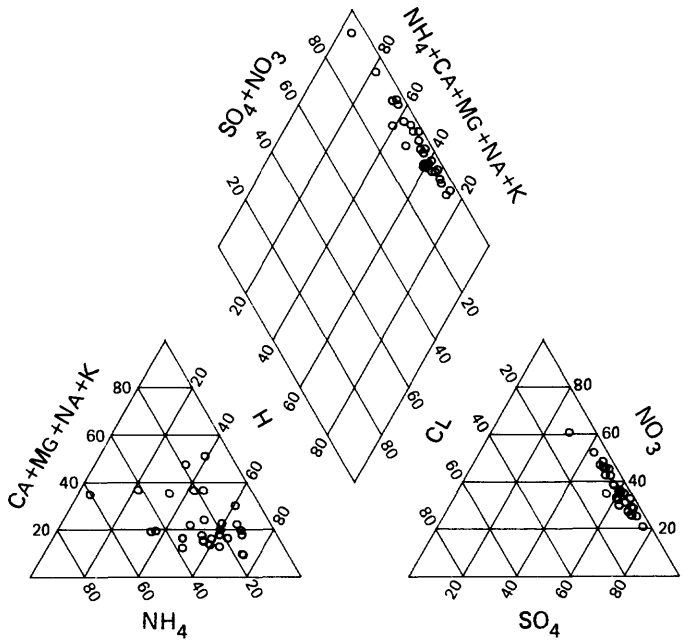
CAL number: MI26 — Map ID number: 46

ADS number: 032a00 — Station summary period: 12/21/1982 to 01/03/1984

Station altitude above mean sea level, in meters: 288 — Length of summary period: 54 sampling intervals (378 days)

Number of sampling intervals (days in parenthesis):			Percent summary period with ppt measurements:	101.3
-- With ppt measurements:	53	(376)	Percent summary period with chemical samples or no ppt:	60.4
-- When ppt occurred:	51	(362)	Percent of total measured ppt with chemical samples:	66.3
-- When ppt did not occur:	2	(14)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	84.5
-- When sample volume was substituted for missing rain gage:	2	(14)		
-- With chemical samples:	29	(210)	Total measured ppt, in mm:	998.4

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	13.9	3.79	0.07	0.021	0.012	0.009	0.09	0.05	0.87	0.88	8.32E-03
10 percentile	.30	16.1	3.86	.08	.022	.025	.012	.15	.07	.97	1.67	2.40E-02
25 percentile	2.40	22.1	4.08	.13	.030	.054	.020	.25	.11	1.63	1.95	3.55E-02
50 percentile	13.20	35.6	4.22	.25	.054	.077	.035	.52	.17	2.81	3.27	6.03E-02
75 percentile	30.70	48.7	4.45	.49	.109	.209	.051	.80	.28	4.56	5.63	8.23E-02
90 percentile	48.40	90.4	4.62	.95	.203	.305	.148	2.05	.54	8.04	7.76	1.38E-01
Maximum value	82.00	104.6	5.08	1.76	.338	.941	.243	2.12	.68	9.18	12.66	1.62E-01
Volume-weighted mean	NA	29.3	4.30	.22	.044	.082	.029	.42	.15	2.14	2.74	4.98E-02
Arithmetic mean	18.84	41.9	4.26	.41	.083	.152	.054	.68	.23	3.42	4.19	6.60E-02
No. of samples	53	29	29	29	29	29	29	29	29	29	29	29
Total load, g/m^2	NA	NA	NA	0.148	0.029	0.054	0.019	0.281	0.100	1.417	1.812	3.3E-02
Maximum interval load, g/m^2	NA	NA	NA	.020	.004	.008	.002	.043	.013	0.137	.174	3.1E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.49	0.34	-.49	-.59	-.42	-.46	-.44	-.48	-.54	-.50	-0.34
P-level		.000	.011	.000	.000	.001	.000	.001	.000	.000	.000	.011



Percentage composition of major ions for site MI26.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Wellston, Michigan — Latitude: 44°13'28" Longitude: 85°49'07"
CAL number: MI53 — Map ID number: 47
ADS number: 033a00 — Station summary period: 12/28/1982 to 09/27/1983
Station altitude above mean sea level, in meters: 292 — Length of summary period: 39 sampling intervals (273 days)
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 39 (273)
-- When ppt occurred: 37 (259)
-- When ppt did not occur: 2 (14)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 33 (231)

Percent summary period with ppt measurements: 73.6
Percent summary period with chemical samples or no ppt: 66.0
Percent of total measured ppt with chemical samples: 92.6
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 91.1
Total measured ppt, in mm: 702.4

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	8.7	3.88	0.05	0.010	0.015	0.010	0.09	0.01	0.73	0.74	4.17E-03
10 percentile	1.00	10.5	4.03	.08	.018	.024	.014	.13	.05	.91	1.14	1.06E-02
25 percentile	6.40	17.2	4.23	.13	.028	.032	.017	.23	.08	1.30	1.54	2.26E-02
50 percentile	12.70	26.0	4.33	.22	.040	.042	.022	.36	.12	1.79	2.25	4.68E-02
75 percentile	25.20	33.2	4.64	.35	.074	.110	.039	.61	.18	2.83	3.22	5.89E-02
90 percentile	41.70	55.1	4.99	.67	.132	.202	.098	.95	.42	5.02	4.57	9.35E-02
Maximum value	84.60	84.4	5.38	1.19	.379	.273	.163	1.39	.56	5.95	8.78	1.32E-01
Volume-weighted mean	NA	24.1	4.37	.21	.043	.051	.026	.36	.12	1.71	2.33	4.30E-02
Arithmetic mean	18.01	28.4	4.43	.29	.065	.078	.037	.45	.17	2.30	2.68	4.70E-02
No. of samples	39	33	33	33	33	33	33	33	33	33	33	33
Total load, g/m^2	NA	NA	NA	0.137	0.028	0.033	0.017	0.236	0.079	1.113	1.511	2.8E-02
Maximum interval load, g/m^2	NA	NA	NA	.011	.002	.003	.002	.033	.008	0.139	0.229	5.0E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.29	0.15	-.36	-.43	-.45	-.28	-.28	-.39	-.50	-.19	-0.15
P-level		.020	.220	.004	.001	.000	.024	.023	.002	.000	.121	.220

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; µs = microsiemens; cond = specific conductance]

STATION: Wellston, Michigan — Latitude: 44°13'28" Longitude: 85°49'07"
CAL number: MI53 — Map ID number: 47
ADS number: 033a01 — Station summary period: 09/27/1983 to 01/03/1984
Station altitude above mean sea level, in meters: 292 — Length of summary period: 14 sampling intervals (98 days)
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 14 (98)
-- When ppt occurred: 14 (98)
-- When ppt did not occur: 0 (0)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 13 (91)
Percent summary period with ppt measurements: 26.4
Percent summary period with chemical samples or no ppt: 24.5
Percent of total measured ppt with chemical samples: 91.4
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 79.6
Total measured ppt, in mm: 278.3

Statistical measures	Measured ppt, mm	Lab specific conductance, µS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	1.00	9.1	3.83	0.07	0.012	0.012	0.006	0.03	0.07	0.56	0.53	1.12E-03
10 percentile	1.15	11.0	4.06	.07	.014	.016	.007	.04	.08	.66	.59	4.32E-03
25 percentile	13.70	16.1	4.43	.09	.026	.038	.014	.07	.12	1.18	1.24	1.66E-02
50 percentile	19.80	18.5	4.53	.21	.033	.053	.028	.18	.16	1.71	1.42	2.95E-02
75 percentile	28.20	24.1	4.81	.38	.087	.091	.055	.63	.21	2.64	2.94	3.72E-02
90 percentile	34.20	66.8	5.59	1.06	.193	.252	.070	1.23	.31	7.43	5.21	1.04E-01
Maximum value	35.10	90.9	5.95	1.20	.227	.252	.072	1.56	.36	8.32	5.34	1.48E-01
Volume-weighted mean	NA	21.7	4.48	.25	.061	.055	.030	.30	.15	1.99	1.87	3.34E-02
Arithmetic mean	19.88	24.7	4.64	.31	.064	.084	.034	.39	.17	2.45	2.20	3.52E-02
No. of samples	14	13	13	13	13	13	13	13	13	13	13	13
Total load, g/m^2	NA	NA	NA	0.063	0.016	0.014	0.008	0.075	0.038	0.505	0.475	8.5E-03
Maximum interval load, g/m^2	NA	NA	NA	.029	.008	.003	.002	.019	.007	.089	.092	1.6E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.19	0.04	-.25	-.13	-.26	-.06	-.20	-.22	.01	-.22	-0.04
P-level		.359	.855	.244	.540	.219	.760	.357	.299	.951	.299	.855

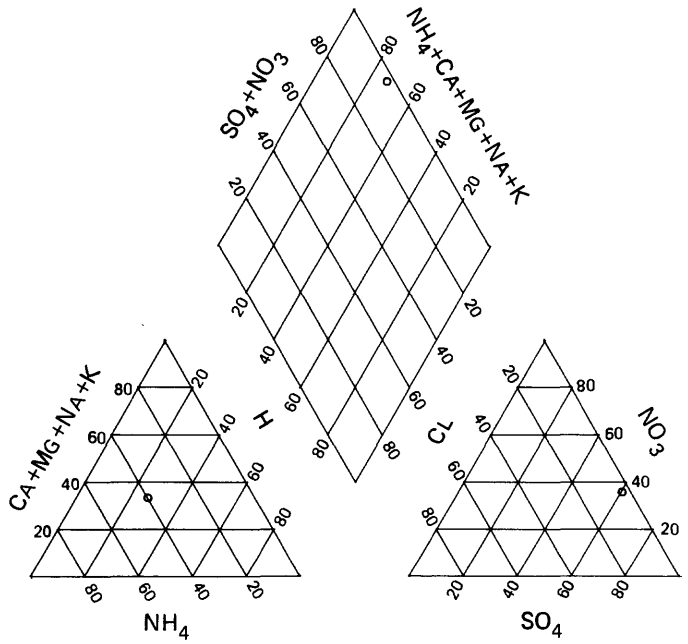
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Camp Ripley, Minnesota — Latitude: 46°14'58" Longitude: 94°29'50"
CAL number: MN23 — Map ID number: 50
ADS number: 352a00
Stetion altitude above mean sea level, in meters: 410
Number of sampling intervels (days in parenthesis):
-- With ppt measurements: 11 (77)
-- When ppt occurred: 11 (77)
-- When ppt did not occur: 0 (0)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 1 (7)

Station summary period: 10/18/1983 to 01/03/1984
Length of summary period: 11 sampling intervals (77 days)
Percent summary period with ppt measurements: 20.8
Percent summary period with chemical samples or no ppt: 1.9
Percent of total measured ppt with chemical samples: 17.5
Percent of totel measured ppt in raingage that was collected in the wet-sample bucket: 91.2
Total measured ppt, in mm: 123.4

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.20	8.9	5.06	0.14	0.017	0.036	0.022	0.22	0.03	0.75	0.99	8.71E-03
10 percentile	.22	8.9	5.06	.14	.017	.036	.022	.22	.03	.75	.99	8.71E-03
25 percentile	.30	8.9	5.06	.14	.017	.036	.022	.22	.03	.75	.99	8.71E-03
50 percentile	5.60	8.9	5.06	.14	.017	.036	.022	.22	.03	.75	.99	8.71E-03
75 percentile	21.60	8.9	5.06	.14	.017	.036	.022	.22	.03	.75	.99	8.71E-03
90 percentile	34.18	8.9	5.06	.14	.017	.036	.022	.22	.03	.75	.99	8.71E-03
Maximum value	35.10	8.9	5.06	.14	.017	.036	.022	.22	.03	.75	.99	8.71E-03
Volume-weighted mean	NA	8.9	5.06	.14	.017	.036	.022	.22	.03	.75	.99	8.71E-03
Arithmetic mean	11.22	8.9	5.06	.14	.017	.036	.022	.22	.03	.75	.99	8.71E-03
No. of samples	11	1	1	1	1	1	1	1	1	1	1	1
Total load, g/m^2	NA	NA	NA	0.003	0.000	0.001	0.000	0.005	0.001	0.016	0.021	1.9E-04
Maximum interval load, g/m^2	NA	NA	NA	.003	.000	.001	.000	.005	.001	.016	.021	1.9E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau												
P-level												



Percentage composition of major ions for site MN23.

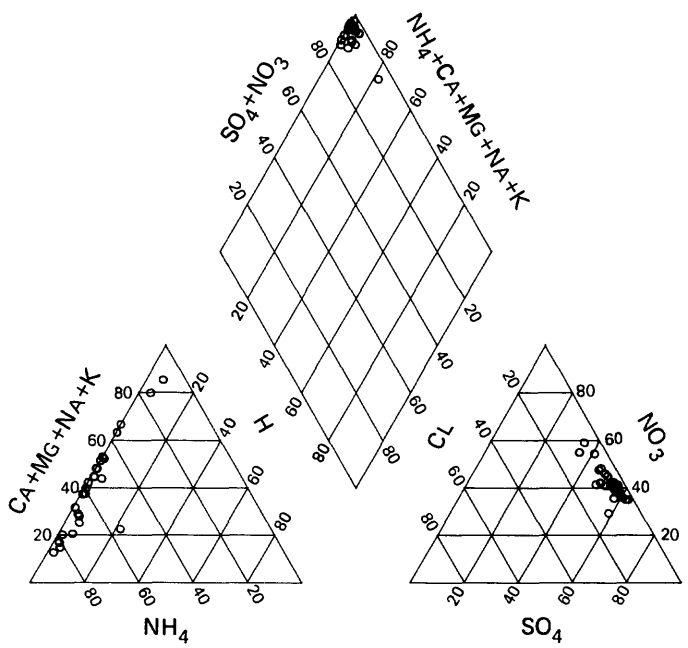
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Lamberton, Minnesota — Latitude: 44°14'14" Longitude: 95°18'02"
CAL number: MN27 — Map ID number: 51
ADS number: 035a00 — Station summary period: 12/29/1982 to 01/02/1984
Station altitude above mean sea level, in meters: 343 — Length of summary period: 53 sampling intervals (369 days)

Number of sampling intervals (days in parenthesis):			Percent summary period with ppt measurements:	99.5
-- With ppt measurements:	53	(369)	Percent summary period with chemical samples or no ppt:	60.4
-- When ppt occurred:	47	(328)	Percent of total measured ppt with chemical samples:	63.9
-- When ppt did not occur:	6	(41)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	94.5
-- When sample volume was substituted for missing rain gage:	1	(8)		
-- With chemical samples:	26	(183)	Total measured ppt, in mm: 636.2	

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum valua	0.00	8.2	4.76	0.10	0.014	0.012	0.018	0.06	0.05	0.91	0.94	1.32E-04
10 percentile	.00	9.0	4.99	.12	.025	.027	.025	.35	.06	1.13	1.18	2.47E-04
25 percentile	1.05	10.4	5.62	.29	.035	.043	.033	.83	.08	1.38	1.55	4.76E-04
50 percentile	5.10	15.5	5.85	.63	.110	.078	.101	1.22	.17	2.17	2.13	1.41E-03
75 percentile	22.25	30.4	6.32	1.07	.165	.164	.145	2.14	.28	4.15	3.90	2.37E-03
90 percentile	29.22	41.7	6.61	2.09	.410	.280	.254	2.87	.39	6.59	5.35	1.02E-02
Maximum value	68.60	51.4	6.88	3.60	.829	.494	.350	4.08	.46	7.85	9.90	1.74E-02
Volume-weighted mean	NA	14.3	5.64	.51	.077	.062	.069	1.04	.12	1.92	2.04	2.31E-03
Arithmetic mean	12.00	20.7	5.90	.87	.154	.119	.110	1.46	.19	2.95	2.80	2.70E-03
No. of samples	53	26	26	26	26	26	26	26	26	26	26	26
Total load, g/m^2	NA	NA	NA	0.206	0.031	0.025	0.028	0.424	0.047	0.781	0.830	9.4E-04
Maximum interval load, g/m^2	NA	NA	NA	.045	.004	.003	.004	.082	.004	.130	.182	2.7E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.50	-0.28	-.49	-.58	-.68	-.41	-.38	-.63	-.47	-.39	0.28
P-level		.000	.049	0.001	.000	.000	.004	.007	.000	.001	.005	.049



Percentage composition of major ions for site MN27.

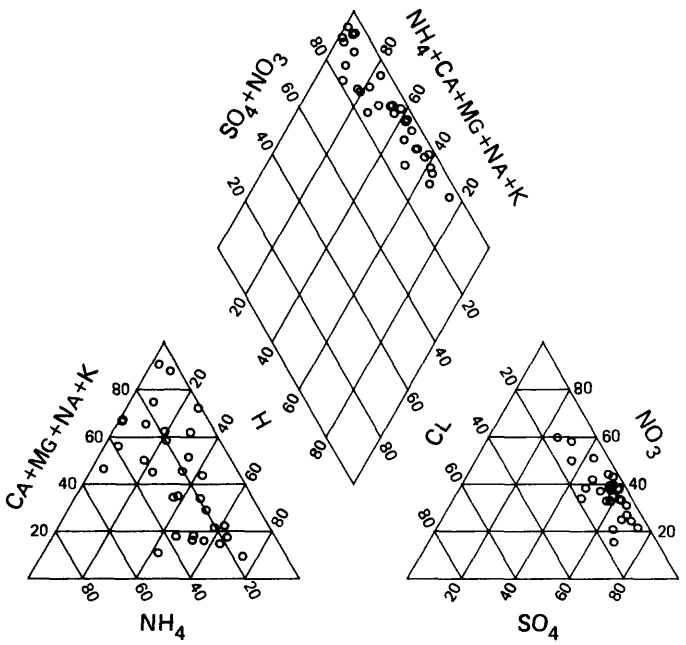
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Ashland, Missouri — Latitude: 38°45'13" Longitude: 92°11'55"
CAL number: MO03 — Map ID number: 52
ADS number: 252a00 — Station summary period: 12/28/1982 to 01/03/1984
Station altitude above mean sea level, in meters: 239 — Length of summary period: 53 sampling intervals (371 days)

Number of sampling intervals (days in parenthesis):			Percent summary period with ppt measurements:	100.0
-- With ppt measurements:	53	(371)	Percent summary period with chemical samples or no ppt:	62.3
-- When ppt occurred:	51	(357)	Percent of total measured ppt with chemical samples:	55.0
-- When ppt did not occur:	2	(14)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	95.4
-- When sample volume was substituted for missing rain gage:	0	(0)		
-- With chemical samples:	31	(217)	Total measured ppt, in mm: 1035.4	

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	5.8	3.83	0.04	0.009	0.017	0.009	0.01	0.06	0.27	0.80	1.26E-03
10 percentile	.00	10.0	4.13	.05	.015	.035	.012	.10	.07	.61	1.02	3.72E-03
25 percentile	1.60	13.3	4.36	.18	.025	.060	.023	.16	.11	.98	1.14	8.71E-03
50 percentile	12.20	18.2	4.63	.38	.052	.108	.037	.26	.18	1.77	.00	2.34E-02
75 percentile	27.30	25.3	5.06	.81	.089	.263	.060	.51	.26	3.32	2.89	4.37E-02
90 percentile	55.86	48.4	5.43	2.32	.202	.675	.092	1.51	.59	4.97	5.26	7.39E-02
Maximum value	97.30	116.3	5.90	2.75	.368	1.710	.196	1.72	.89	11.45	12.41	1.48E-01
Volume-weighted mean	NA	19.1	4.54	.25	.033	.104	.027	.32	.15	1.40	2.01	2.91E-02
Arithmetic mean	19.54	24.1	4.74	.64	.079	.236	.048	.46	.25	2.45	271	2.96E-02
No. of samples	53	31	31	31	31	31	31	31	31	31	31	31
Total load, g/m^2	NA	NA	NA	0.141	0.019	0.059	0.015	0.183	0.085	0.799	1.147	1.7E-02
Maximum interval load, g/m^2	NA	NA	NA	.016	.002	.008	.002	.030	.014	.085	0.147	2.7E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.11	-0.20	-.58	-.70	-.54	-.57	-.16	-.52	-.45	-.18	0.20
P-level		.376	.125	.000	.000	.000	.000	.201	.000	.001	.148	.125



Percentage composition of major ions for site MO03.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

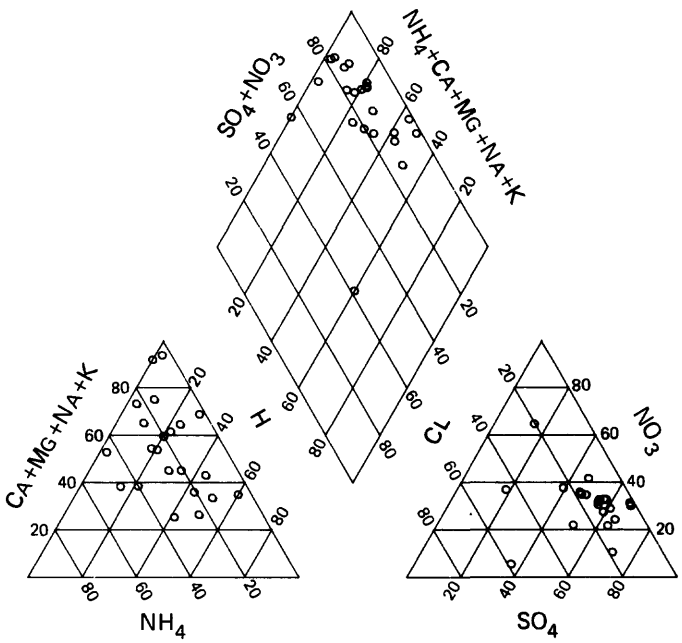
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Glacier National Park, Montana — Latitude: 48°30'37" Longitude: 113°59'44"
CAL number: MT05 — Map ID number: 54
ADS number: 037a00
Station altitude above mean sea level, in meters: 968
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 51 (364)
-- When ppt occurred: 48 (343)
-- When ppt did not occur: 3 (21)
-- When sample volume was substituted for missing rain gage: 1 (7)
-- With chemical samples: 22 (154)

Station summary period: 12/28/1982 to 01/03/1984
Length of summary period: 52 sampling intervals (371 days)
Percent summary period with ppt measurements: 98.1
Percent summary period with chemical samples or no ppt: 47.2
Percent of total measured ppt with chemical samples: 34.9
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 85.7

Total measured ppt, in mm: 842.5

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	3.0	4.42	0.02	0.007	0.007	0.006	0.01	0.01	0.01	0.05	2.51E-04
10 percentile	.50	3.4	4.82	.04	.008	.022	.006	.02	.02	.11	.11	8.77E-04
25 percentile	3.30	4.3	5.03	.06	.016	.041	.014	.04	.07	.28	.40	1.73E-03
50 percentile	10.20	6.8	5.37	.10	.024	.056	.029	.08	.11	.44	.58	4.27E-03
75 percentile	25.40	9.6	5.76	.24	.051	.137	.057	.18	.17	.76	.84	9.39E-03
90 percentile	43.30	22.6	6.06	.78	.182	.700	.135	.34	.50	1.01	1.07	1.51E-02
Maximum value	87.10	35.1	6.60	2.21	.978	1.559	.261	.41	.74	1.63	1.31	3.80E-02
Volume-weighted mean	NA	5.3	5.15	.10	.022	.052	.026	.08	.07	.35	.47	7.14E-03
Arithmetic mean	16.52	8.8	5.40	.27	.083	.183	.048	.12	.16	.52	.62	6.87E-03
No. of samples	51	22	22	22	22	22	22	22	22	22	22	22
Total load, g/m^2	NA	NA	NA	0.028	0.006	0.015	0.008	0.023	0.022	0.103	0.139	2.1E-03
Maximum interval load, g/m^2	NA	NA	NA	.003	.001	.001	.001	.004	.003	.012	.021	4.1E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.54	-0.36	-.50	-.50	-.62	-.38	-.25	-.62	-.43	-.36	0.36
P-level		.001	.021	.001	.001	.000	.015	.107	.000	.006	.021	.021



Percentage composition of major ions for site MT05.

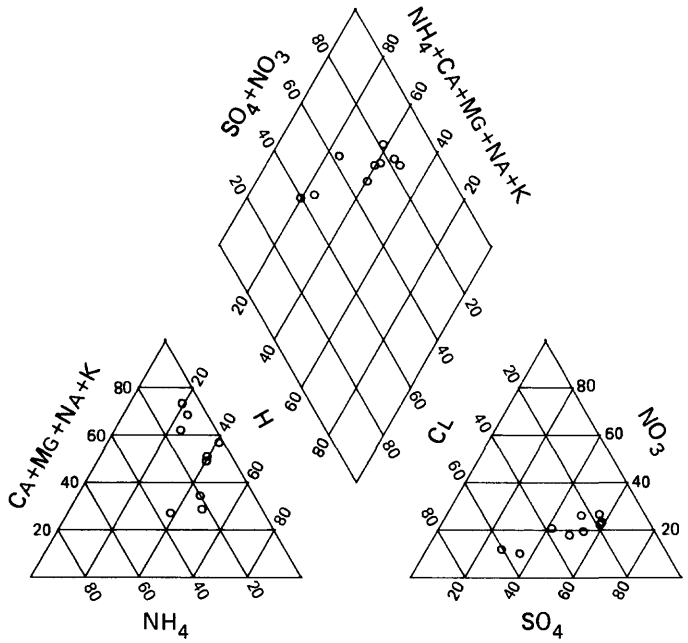
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Jordan Creek, North Carolina — Latitude: 34°58'16" Longitude: 79°31'41"
CAL number: NC36 — Map ID number: 59
ADS number: 360a00
Station altitude above mean sea level, in meters: 132
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 11 (77)
-- When ppt occurred: 11 (77)
-- When ppt did not occur: 0 (0)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 9 (63)

Station summary period: 10/18/1983 to 01/03/1984
Length of summary period: 11 sampling intervals (77 days)
Percent summary period with ppt measurements: 20.8
Percent summary period with chemical samples or no ppt: 17.0
Percent of total measured ppt with chemical samples: 96.9
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 99.1
Total measured ppt, in mm: 390.0

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.30	5.5	4.57	0.02	0.016	0.088	0.011	0.01	0.16	0.21	0.56	5.75E-03
10 percentile	2.06	5.5	4.57	.02	.016	.088	.011	.01	.16	.21	.56	5.75E-03
25 percentile	11.70	7.6	4.72	.04	.021	.130	.013	.04	.23	.37	.68	9.33E-03
50 percentile	24.90	12.5	4.73	.05	.043	.284	.020	.08	.50	.58	1.06	1.86E-02
75 percentile	52.60	16.1	5.03	.11	.050	.364	.035	.13	.61	.69	1.40	1.91E-02
90 percentile	104.74	18.4	5.24	.32	.137	1.140	.049	.19	2.00	1.08	1.63	2.69E-02
Maximum value	109.20	18.4	5.24	.32	.137	1.140	.049	.19	2.00	1.08	1.63	2.69E-02
Volume-weighted mean	NA	9.6	4.92	.05	.038	.285	.020	.09	.49	.44	.90	1.20E-02
Arithmetic mean	35.45	11.7	4.85	.09	.046	.337	.025	.09	.58	.57	1.08	1.54E-02
No. of samples	11	9	9	9	9	9	9	9	9	9	9	9
Total load, g/m^2	NA	NA	NA	0.019	0.014	0.108	0.008	0.035	0.185	0.166	0.340	4.5E-03
Maximum interval load, g/m^2	NA	NA	NA	.003	.005	.041	.002	.017	.070	.044	.092	1.1E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.61	0.63	-.79	-.37	-.17	-.46	.03	-.11	-.83	-.65	-0.63
P-level		.022	.020	.004	.173	.532	.092	.917	.677	.002	.016	.020



Percentage composition of major ions for site NC36.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Finley (A), North Carolina — Latitude: 35°43'43" Longitude: 78°40'52"

CAL number: NC41 — Map ID number: 60

ADS number: 053a02 — Station summary period: 12/21/1982 to 05/10/1983

Station altitude above mean sea level, in meters: 119 — Length of summary period: 19 sampling intervals (140 days)

Number of sampling intervals (days in parenthesis):

-- With ppt measurements:	19	(140)
-- When ppt occurred:	18	(133)
-- When ppt did not occur:	1	(7)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	10	(77)

Percent summary period with ppt measurements:	37.7
Percent summary period with chemical samples or no ppt:	22.6
Percent of total measured ppt with chemical samples:	41.2
Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	86.3
Total measured ppt, in mm:	518.1

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	5.3	4.00	0.02	0.011	0.052	0.003	0.05	0.10	0.25	0.57	5.89E-03
10 percentile	1.30	5.4	4.02	.02	.012	.052	.004	.05	.10	.27	.58	5.90E-03
25 percentile	5.80	7.8	4.32	.05	.024	.058	.015	.10	.14	.45	.85	1.14E-02
50 percentile	19.80	17.9	4.63	.10	.044	.194	.026	.12	.32	.97	1.13	2.34E-02
75 percentile	40.40	35.1	4.96	.22	.125	.684	.045	.30	1.22	2.66	2.10	4.93E-02
90 percentile	67.60	66.8	5.23	.48	.263	1.537	.078	.62	2.63	5.35	6.33	9.69E-02
Maximum value	124.00	70.0	5.23	.49	.266	1.580	.080	.64	2.69	5.51	6.78	1.00E-01
Volume-weighted mean	NA	12.3	4.76	.07	.036	.206	.017	.11	.36	.74	1.02	1.72E-02
Arithmetic mean	27.27	23.5	4.64	.16	.085	.420	.032	.21	.74	1.69	1.79	3.35E-02
No. of samples	19	10	10	10	10	10	10	10	10	10	10	10
Total load, g/m^2	NA	NA	NA	0.014	0.008	0.044	0.004	0.024	0.076	0.159	0.219	3.7E-03
Maximum interval load, g/m^2	NA	NA	NA	.002	.002	.013	.001	.005	.021	.032	.065	1.0E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.56	0.51	-.85	-.64	-.24	-.56	-.67	-.24	-.64	-.51	-0.51
P-level		.025	.040	.001	.010	.325	.025	.007	.325	.010	.040	.040

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; µs = microsiemens; cond = specific conductance]

STATION: Finley (A), North Carolina — Latitude: 35°43'43" Longitude: 78°40'52"
CAL number: NC41 — Map ID number: 60
ADS number: 053a03
Station altitude above mean sea level, in meters: 119
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 34 (238)
-- When ppt occurred: 32 (224)
-- When ppt did not occur: 2 (14)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 28 (196)

Station summary period: 05/10/1983 to 01/03/1984
Length of summary period: 34 sampling intervals (238 days)
Percent summary period with ppt measurements: 64.2
Percent summary period with chemical samples or no ppt: 56.6
Percent of total measured ppt with chemical samples: 84.2
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 95.1
Total measured ppt, in mm: 712.3

Statistical measures	Measured ppt, mm	Lab specific conductance, µS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	4.9	3.75	0.02	0.013	0.016	0.007	0.01	0.04	0.20	0.57	2.51E-03
10 percentile	.15	5.7	4.01	.03	.016	.033	.013	.05	.14	.31	.60	5.33E-03
25 percentile	3.47	11.6	4.24	.06	.028	.087	.019	.10	.18	.53	1.16	1.56E-02
50 percentile	15.25	20.0	4.48	.10	.039	.146	.031	.19	.24	1.01	1.62	3.27E-02
75 percentile	30.32	36.0	4.81	.21	.061	.285	.062	.62	.43	2.36	3.52	5.69E-02
90 percentile	47.50	75.4	5.27	.31	.233	.880	.118	.74	1.64	2.82	7.59	9.91E-02
Maximum value	94.00	81.7	5.60	1.21	.411	1.980	.440	1.27	3.61	6.40	12.96	1.78E-01
Volume-weighted mean	NA	19.0	4.76	.08	.038	.215	.030	.25	.39	1.01	1.84	3.23E-02
Arithmetic mean	20.95	26.9	4.56	.17	.069	.306	.061	.33	.55	1.57	2.82	4.43E-02
No. of samples	34	28	28	28	28	28	28	28	28	28	28	28
Total load, g/m^2	NA	NA	NA	0.046	0.023	0.129	0.018	0.150	0.236	0.608	1.106	1.9E-02
Maximum interval load, g/m^2	NA	NA	NA	.004	.004	.031	.002	.032	.054	.134	0.282	6.8E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.47	0.39	-.71	-.61	-.24	-.49	-.22	-.21	-.45	-.44	-0.39
P-level		.001	.003	.000	.000	.079	.000	.105	.123	.001	.001	.003

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Teddy Roosevelt National Park, North Dakota — Latitude: 47°36'09" Longitude: 103°15'54"
CAL number: ND07 — Map ID number: 61
ADS number: 062a00
Station altitude above mean sea level, in meters: 618
Number of sampling intervals (days in parenthesis):

-- With ppt measurements:	32	(245)
-- When ppt occurred:	31	(238)
-- When ppt did not occur:	1	(7)
-- When sample volume was substituted for missing rain gage:	3	(21)
-- With chemical samples:	22	(169)

Station summary period: 12/21/1982 to 08/30/1983
Length of summary period: 33 sampling intervals (252 days)
Percent summary period with ppt measurements: 66.0
Percent summary period with chemical samples or no ppt: 47.4
Percent of total measured ppt with chemical samples: 90.7
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 96.3
Total measured ppt, in mm: 223.7

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	5.5	4.96	0.05	0.016	0.023	0.007	0.01	0.03	0.36	0.51	5.01E-04
10 percentile	.30	5.7	5.05	.12	.025	.027	.009	.06	.04	.42	.65	8.11E-04
25 percentile	.42	7.0	5.16	.21	.038	.069	.022	.14	.06	.59	.80	1.24E-03
50 percentile	2.40	10.7	5.50	.48	.099	.165	.039	.28	.13	1.28	1.27	3.14E-03
75 percentile	7.07	16.0	5.91	.84	.166	.219	.081	.59	.28	1.93	2.17	6.97E-03
90 percentile	25.51	21.5	6.09	1.28	.249	.421	.182	.97	.47	2.71	3.46	9.00E-03
Maximum value	37.10	24.4	6.30	1.60	.401	.465	.209	1.17	.59	3.74	3.98	1.10E-02
Volume-weighted mean	NA	8.9	5.26	.31	.061	.082	.037	.24	.09	.93	1.06	5.47E-03
Arithmetic mean	6.99	12.1	5.55	.57	.119	.170	.064	.38	.19	1.42	1.61	3.98E-03
No. of samples	32	22	22	22	22	22	22	22	22	22	22	22
Total load, g/m^2	NA	NA	NA	0.062	0.012	0.017	0.007	0.049	0.018	0.188	0.215	1.1E-03
Maximum interval load, g/m^2	NA	NA	NA	.008	.001	.002	.001	.009	.003	.033	.037	2.9E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.41	-0.37	-.52	-.55	-.63	-.44	-.32	-.55	-.38	-.46	0.37
P-level		.008	.016	.001	.000	.000	.004	.042	.000	.013	.003	.016

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Teddy Roosevelt National Park, North Dakota — Latitude: 47°36'09" Longitude: 103°15'54"
CAL number: ND07 — Map ID number: 61
ADS number: 062a01
Station altitude above mean sea level, in meters: 618
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 18 (126)
-- When ppt occurred: 16 (112)
-- When ppt did not occur: 2 (14)
-- When sample volume was substituted for missing rain gage: 2 (13)
-- With chemical samples: 8 (56)

Station summary period: 08/30/1983 to 01/03/1984
Length of summary period: 18 sampling intervals (126 days)
Percent summary period with ppt measurements: 34.0
Percent summary period with chemical samples or no ppt: 18.9
Percent of total measured ppt with chemical samples: 54.8
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 85.6
Total measured ppt, in mm: 39.6

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	6.4	4.49	0.20	0.032	0.060	0.015	0.01	0.10	0.73	0.74	4.68E-04
10 percentile	.00	6.4	4.49	.20	.032	.060	.015	.01	.10	.73	.74	4.68E-04
25 percentile	.22	7.7	4.93	.26	.048	.075	.023	.04	.16	.88	0.94	1.44E-03
50 percentile	1.30	11.0	5.45	.32	.068	.121	.033	.13	.21	1.36	2.01	4.08E-03
75 percentile	2.77	19.7	5.84	.62	.180	.533	.097	.49	.41	2.11	2.82	1.18E-02
90 percentile	7.44	25.6	6.33	.72	.205	.650	.253	1.54	1.08	2.14	3.47	3.24E-02
Maximum value	13.20	25.6	6.33	.72	.205	.650	.253	1.54	1.08	2.14	3.47	3.24E-02
Volume-weighted mean	NA	13.2	4.91	.33	.065	.110	.033	.28	.19	1.40	1.71	1.24E-02
Arithmetic mean	2.20	13.4	5.41	.40	.099	.258	.067	.34	.34	1.44	1.98	8.35E-03
No. of samples	18	8	8	8	8	8	8	8	8	8	8	8
Total load, g/m^2	NA	NA	NA	0.007	0.001	0.002	0.001	0.006	0.004	0.030	0.037	2.7E-04
Maximum interval load, g/m^2	NA	NA	NA	.002	.000	.000	.000	.003	0.001	.011	.016	1.8E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.11	-0.40	-.15	-.40	-.84	-.37	.04	-0.69	-.30	-.33	0.40
P-level		.708	.170	.615	.170	.004	.209	.901	0.018	.315	.262	.170

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

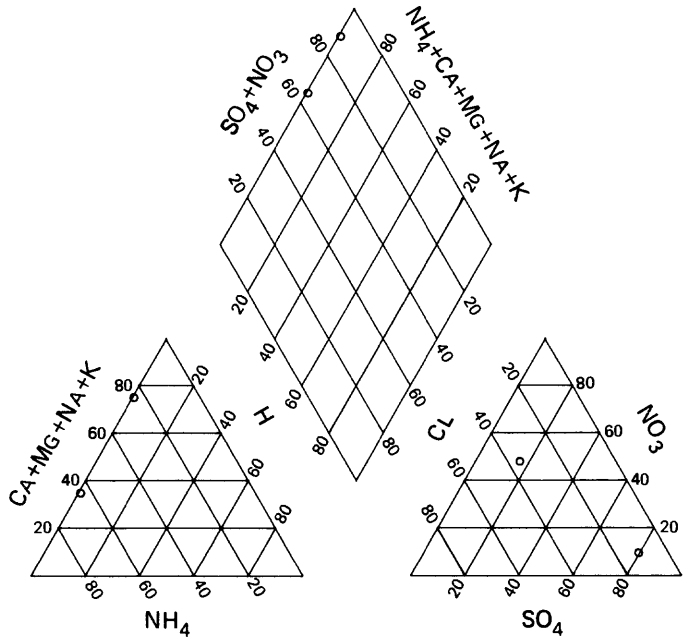
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Icelandic, North Dakota — Latitude: 48°46'57" Longitude: 97°45'15"
CAL number: ND08 — Map ID number: 62
ADS number: 361a00 — Station summary period: 10/25/1983 to 01/03/1984
Station altitude above mean sea level, in meters: 308 — Length of summary period: 10 sampling intervals (70 days)
Number of sampling intervals (days in parenthesis):

-- With ppt measurements:	10	(70)
-- When ppt occurred:	9	(63)
-- When ppt did not occur:	1	(7)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	2	(14)

Percent summary period with ppt measurements:	18.9
Percent summary period with chemical samples or no ppt:	5.7
Percent of total measured ppt with chemical samples:	9.7
Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	38.9
Total measured ppt, in mm:	18.5

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	15.3	5.98	0.12	0.135	0.518	0.041	0.50	0.67	1.59	0.42	6.92E-04
10 percentile	.02	15.3	5.98	.12	.135	.518	.041	.50	.67	1.59	.42	6.92E-04
25 percentile	.27	15.3	5.98	.12	.135	.518	.041	.50	.67	1.59	.42	6.92E-04
50 percentile	.30	16.5	6.07	.48	.183	.519	.070	.94	1.15	2.03	8.26	8.69E-04
75 percentile	1.30	17.7	6.16	.83	.231	.519	.100	1.37	1.64	2.46	16.10	1.05E-03
90 percentile	12.73	17.7	6.16	.83	.231	.519	.100	1.37	1.64	2.46	16.10	1.05E-03
Maximum value	14.00	17.7	6.16	.83	.231	.519	.100	1.37	1.64	2.46	16.10	1.05E-03
Volume-weighted mean	NA	17.0	6.10	.63	.206	.518	.083	.75	.95	1.84	4.92	7.94E-04
Arithmetic mean	1.85	16.5	6.07	.48	.183	.519	.070	.94	1.15	2.03	8.26	8.69E-04
No. of samples	10	2	2	2	2	2	2	2	2	2	2	2
Total load, g/m^2	NA	NA	NA	0.001	0.000	0.001	0.000	0.001	0.002	0.003	0.009	1.4E-06
Maximum interval load, g/m^2	NA	NA	NA	.001	.000	.001	.000	.001	.001	.002	.008	8.8E-07
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		1.00	1.00	1.00	1.00	-1.00	1.00	-1.00	-1.00	-1.00	-1.00	-1.00
P-level		0.000	0.000	.000	.000	.000	.000	.000	.000	.000	.000	0.000



Percentage composition of major ions for site ND08.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Woodworth, North Dakota — Latitude: 47°07'22" Longitude: 99°14'02"
CAL number: ND11 — Map ID number: 63
ADS number: 362a00 — Station summary period: 11/29/1983 to 01/03/1984
Station altitude above mean sea level, in meters: 0 — Length of summary period: 5 sampling intervals (35 days)
Number of sampling intervals (days in parenthesis): — Percent summary period with ppt measurements: 9.4
-- With ppt measurements: 5 (35) — Percent summary period with chemical samples or no ppt:
-- When ppt occurred: 2 (14) — Percent of total measured ppt with valid samples:
-- When ppt did not occur: 3 (21) — Percent of total measured ppt in raingage that was collected in the wet-sample bucket:
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chamical samples: ( ) — Total measured ppt, in mm: 7.7

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00											
10 percentile	.00											
25 percentile	.00											
50 percentile	.00											
75 percentile	3.85											
90 percentile	8.90											
Maximum value	8.90											
Volume-weighted mean	NA											
Arithmetic mean	1.54											
No. of samples	5											
Total load, g/m^2	NA	NA	NA									
Maximum interval load, g/m^2	NA	NA	NA									
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau												
P-level												

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Mead, Nebraska — Latitude: 41°09'11" Longitude: 96°29'34"

CAL number: NE15 — Map ID number: 64

ADS number: 038a00 — Station summary period: 12/29/1982 to 09/06/1983

Station altitude above mean sea level, in meters: 352 — Length of summary period: 36 sampling intervals (251 days)

Number of sampling intervals (days in parenthesis):

-- With ppt measurements:	36	(251)
-- When ppt occurred:	30	(210)
-- When ppt did not occur:	6	(41)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	26	(182)

Percent summary period with ppt measurements:	67.6
Percent summary period with chemical samples or no ppt:	60.1
Percent of total measured ppt with chemical samples:	94.0
Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	100.3
Total measured ppt, in mm:	463.9

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	7.2	3.73	0.06	0.009	0.011	0.007	0.01	0.04	0.69	0.47	2.69E-04
10 percentile	.00	8.5	4.45	.08	.012	.026	.014	.19	.06	.89	.53	3.99E-04
25 percentile	1.30	12.6	4.78	.22	.025	.050	.028	.40	.09	1.00	.95	1.06E-03
50 percentile	4.20	16.9	5.43	.40	.048	.100	.051	.92	.15	1.69	1.66	3.73E-03
75 percentile	26.37	29.5	5.97	.82	.105	.219	.122	1.47	.30	2.65	2.99	1.67E-02
90 percentile	36.80	58.1	6.40	1.81	.212	.363	.264	2.28	.55	5.10	4.76	3.57E-02
Maximum value	66.00	88.8	6.57	3.18	.345	.508	.372	5.23	.77	5.91	9.67	1.86E-01
Volume-weighted mean	NA	15.1	4.99	.37	.048	.104	.040	.70	.15	1.34	1.69	1.02E-02
Arithmetic mean	12.89	24.7	5.40	.65	.080	.145	.087	1.12	.23	2.18	2.31	1.57E-02
No. of samples	36	26	26	26	26	26	26	26	26	26	26	26
Total load, g/m^2	NA	NA	NA	0.160	0.021	0.045	0.017	0.305	0.065	0.584	0.737	4.4E-03
Maximum interval load, g/m^2	NA	NA	NA	.036	.007	.020	.003	.056	.021	.099	.193	1.5E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.51	-0.09	-.43	-.46	-.47	-.57	-.44	-.53	-.53	-.27	0.09
P-level		.000	.536	.003	.001	.001	.000	.002	.000	.000	.060	.536

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; µs = microsiemens; cond = specific conductance]

STATION: Mead, Nebraska — Latitude: 41°09'11" Longitude: 96°29'34"
CAL number: NE15 — Map ID number: 64
ADS number: 038a01 — Station summary period: 09/06/1983 to 01/03/1984
Station altitude above mean sea level, in meters: 352 — Length of summary period: 17 sampling intervals (119 days)

Number of sampling intervals (days in parenthesis):			Percent summary period with ppt measurements:	32.1
-- With ppt measurements:	17	(119)	Percent summary period with chemical samples or no ppt:	18.9
-- When ppt occurred:	16	(112)	Percent of total measured ppt with chemical samples:	85.1
-- When ppt did not occur:	1	(7)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	94.5
-- When sample volume was substituted for missing rain gage:	0	(0)		
-- With chemical samples:	9	(63)	Total measured ppt, in mm:	197.0

Statistical measures	Measured ppt, mm	Lab specific conductance, µS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	6.8	4.35	0.05	0.008	0.016	0.010	0.08	0.06	0.83	0.71	5.13E-04
10 percentile	.00	6.8	4.35	.05	.008	.016	.010	.08	.06	.83	.71	5.13E-04
25 percentile	.30	8.1	4.75	.08	.020	.036	.013	.32	.07	1.09	1.04	9.85E-04
50 percentile	5.10	10.6	5.80	.49	.034	.053	.048	.63	.11	1.38	1.33	1.58E-03
75 percentile	24.10	28.3	6.01	.64	.064	.190	.090	.98	.24	2.32	3.78	1.89E-02
90 percentile	35.82	31.0	6.29	2.31	.183	.457	.142	1.44	.47	4.91	4.85	4.47E-02
Maximum value	41.90	31.0	6.29	2.31	.183	.457	.142	1.44	.47	4.91	4.85	4.47E-02
Volume-weighted mean	NA	13.0	5.06	.46	.045	.095	.047	.53	.14	1.47	1.76	8.74E-03
Arithmetic mean	11.59	15.9	5.43	.57	.052	.125	.056	.65	.17	1.87	2.17	1.08E-02
No. of samples	17	9	9	9	9	9	9	9	9	9	9	9
Total load, g/m^2	NA	NA	NA	0.078	0.008	0.016	0.008	0.089	0.024	0.246	0.295	1.5E-03
Maximum interval load, g/m^2	NA	NA	NA	.031	.003	.008	.003	.015	.009	.055	.060	7.4E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.29	-0.06	-.11	-.11	-.34	-.06	-.40	-.29	-.40	-.17	0.06
P-level		.292	.833	.673	.673	.206	.832	.140	.292	.140	.527	.833

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

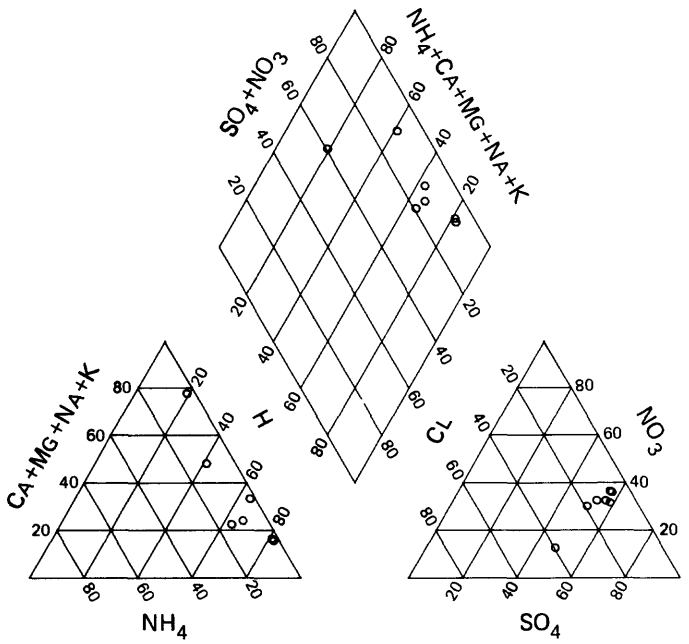
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Biscuit Brook, New York — Latitude: 41°59'39" Longitude: 74°30'13"
CAL number: NY68 — Map ID number: 74
ADS number: 359a00 — Station summary period: 10/11/1983 to 01/03/1984
Station altitude above mean sea level, in meters: 634 — Length of summary period: 12 sampling intervals (84 days)

Number of sampling intervals (days in parenthesis):			
-- With ppt measurements:	12	(84)	
-- When ppt occurred:	12	(84)	
-- When ppt did not occur:	0	(0)	
-- When sample volume was substituted for missing rain gage:	0	(0)	
-- With chemical samples:	7	(50)	

Percent summary period with ppt measurements:	22.6
Percent summary period with chemical samples or no ppt:	13.5
Percent of total measured ppt with chemical samples:	70.8
Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	81.4
Total measured ppt, in mm:	383.7

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	1.30	4.6	4.44	0.02	0.007	0.027	0.005	0.01	0.07	0.22	0.64	3.39E-03
10 percentile	1.66	4.6	4.44	.02	.007	.027	.005	.01	.07	.22	.64	3.39E-03
25 percentile	7.62	9.7	4.65	.02	.009	.028	.008	.01	.08	.64	.78	1.70E-02
50 percentile	27.60	11.5	4.71	.04	.016	.091	.012	.01	.19	.69	.90	1.95E-02
75 percentile	57.77	11.7	4.77	.04	.030	.233	.043	.08	.38	.76	.97	2.24E-02
90 percentile	69.97	29.0	5.47	.38	.084	.320	.104	.17	.39	2.12	3.04	3.63E-02
Maximum value	72.40	29.0	5.47	.38	.084	.320	.104	.17	.39	2.12	3.04	3.63E-02
Volume-weighted mean	NA	10.5	4.75	.03	.015	.099	.018	.03	.19	.67	.89	1.76E-02
Arithmetic mean	31.97	12.7	4.78	.08	.025	.130	.028	.05	.21	.83	1.16	1.96E-02
No. of samples	12	7	7	7	7	7	7	7	7	7	7	7
Total load, g/m^2	NA	NA	NA	0.009	0.004	0.027	0.005	0.009	0.051	0.181	0.243	4.8E-03
Maximum interval load, g/m^2	NA	NA	NA	.003	.001	.010	.003	.005	.018	.050	.065	1.2E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.14	0.29	-.37	-.29	-.14	-.20	-.06	-.14	.00	.14	-0.29
P-level		.652	.362	.266	.362	.652	.543	.867	.652	1.000	.652	.362



Percentage composition of major ions for site NY68.

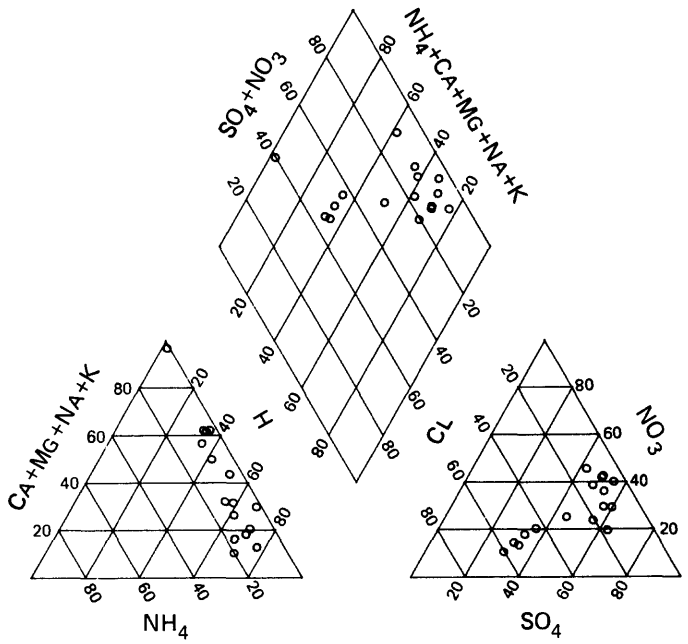
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: West Point, New York — Latitude: 41°21'03" Longitude: 74°02'54"
CAL number: NY99 — Map ID number: 75
ADS number: 358a00 — Station summary period: 09/13/1983 to 01/03/1984
Station altitude above mean sea level, in meters: 203 — Length of summary period: 16 sampling intervals (112 days)

Number of sampling intervals (days in parenthesis):			Percent summary period with ppt measurements:	30.2
-- With ppt measurements:	16	(112)	Percent summary period with chemical samples or no ppt:	30.2
-- When ppt occurred:	16	(112)	Percent of total measured ppt with chemical samples:	100.0
-- When ppt did not occur:	0	(0)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	96.2
-- When sample volume was substituted for missing rain gage:	0	(0)		
-- With chemical samples:	16	(112)	Total measured ppt, in mm: 633.3	

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.50	9.7	3.90	0.02	0.013	0.051	0.008	0.01	0.12	0.34	0.66	1.15E-02
10 percentile	0.71	10.2	3.91	.03	.016	.062	.011	.02	.16	.44	.75	1.36E-02
25 percentile	7.57	12.7	4.36	.04	.019	.107	.012	.06	.23	.60	1.02	1.85E-02
50 percentile	31.25	18.9	4.56	.05	.045	.192	.018	.09	.37	1.02	1.31	2.76E-02
75 percentile	53.85	51.7	4.73	.25	.114	.756	.037	.20	1.01	3.05	4.22	4.32E-02
90 percentile	105.05	77.9	4.87	1.41	.478	2.781	.325	.42	4.64	6.36	7.19	1.24E-01
Maximum value	127.80	79.2	4.94	2.52	.972	7.040	.366	.57	11.48	7.03	7.63	1.26E-01
Volume-weighted mean	NA	17.8	4.53	.06	.052	.368	.021	.09	.66	.95	1.27	2.93E-02
Arithmetic mean	39.58	30.2	4.49	.30	.127	.767	.063	.15	1.28	2.06	2.51	4.24E-02
No. of samples	16	16	16	16	16	16	16	16	16	16	16	16
Total load, g/m^2	NA	NA	NA	0.035	0.033	0.233	0.013	0.054	0.420	0.599	0.802	1.9E-02
Maximum interval load, g/m^2	NA	NA	NA	.007	.015	.122	.005	.010	.218	.121	.170	3.7E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.34	0.15	-.47	-.31	-.24	-.26	-.31	-.29	-.39	-.41	-0.15
P-level		.065	.417	.016	.095	.191	.174	.103	.115	.034	.027	.417



Percentage composition of major ions for site NY99.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

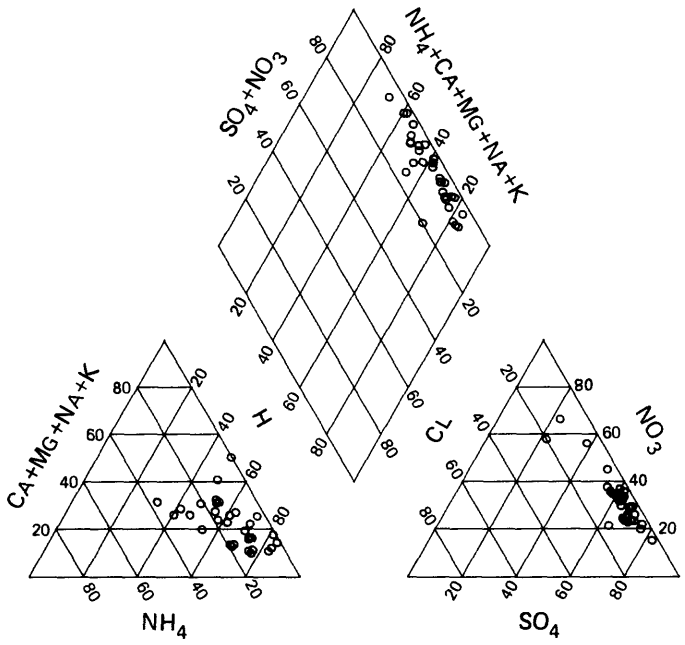
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Caldwell, Ohio — Latitude: 39°47'34" Longitude: 81°31'52"
CAL number: OH49 — Map ID number: 77
ADS number: 056a00 — Station summary period: 12/28/1982 to 01/03/1984
Station altitude above mean sea level, in meters: 276 — Length of summary period: 53 sampling intervals (371 days)
Number of sampling intervals (days in parenthesis):

-- With ppt measurements:	53	(371)
-- When ppt occurred:	52	(364)
-- Whan ppt did not occur:	1	(7)
-- When sample volume was substituted for missing rain gage:	1	(7)
-- With chemical samples:	32	(224)

Percent summary period with ppt measurements:	100.0
Percent summary period with chemical samples or no ppt:	66.3
Percent of total measured ppt with chemical samples:	56.2
Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	99.6
Total measured ppt, in mm: 1034.2	

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	10.2	3.59	0.05	0.008	0.022	0.002	0.01	0.07	0.49	0.44	1.55E-02
10 percentile	1.08	16.6	3.87	.06	.014	.026	.008	.02	.08	.89	1.36	3.06E-02
25 percentile	3.10	20.9	4.18	.09	.021	.040	.012	.08	.11	1.16	1.75	3.89E-02
50 percentile	15.20	28.3	4.33	.16	.031	.056	.021	.24	.16	1.69	2.65	4.68E-02
75 percentile	27.15	38.8	4.41	.44	.072	.116	.039	.38	.26	2.62	3.22	6.57E-02
90 percentile	44.92	75.3	4.51	.96	.168	.433	.069	.83	.52	5.58	10.78	1.37E-01
Maximum value	92.50	145.0	4.81	1.65	.375	.671	.175	1.21	.97	6.69	15.71	2.57E-01
Volume-weighted mean	NA	27.4	4.30	.17	.032	.056	.023	.22	.15	1.47	2.60	5.06E-02
Arithmetic mean	19.51	37.1	4.27	.34	.064	.120	.032	.29	.23	2.24	3.72	6.62E-02
No. of samples	53	32	32	32	32	32	32	32	32	32	32	32
Total load, g/m^2	NA	NA	NA	0.097	0.018	0.033	0.013	0.129	0.085	0.854	1.508	2.9E-02
Maximum interval load, g/m^2	NA	NA	NA	.017	.003	.004	.002	.021	.013	.102	0.274	5.5E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendsll tau		-0.37	0.32	-.53	-.55	-.52	-.27	-.17	-.41	-.47	-.25	-0.32
P-level		.003	.012	.000	.000	.000	.032	.172	.001	.000	.044	.012



Percentage composition of major ions for site OH49.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Great Plains Apiaries, Oklahoma — Latitude: 34°58'48" Longitude: 97°31'16"

CAL number: OK17 — Map ID number: 80

ADS number: 364a00

Station altitude above mean sea level, in meters: 330

Number of sampling intervals (days in parenthesis):

-- With ppt measurements:	39	(277)
-- When ppt occurred:	33	(236)
-- When ppt did not occur:	6	(41)
-- When sample volume was substituted for missing rain gage:	2	(14)
-- With chemical samples:	26	(190)

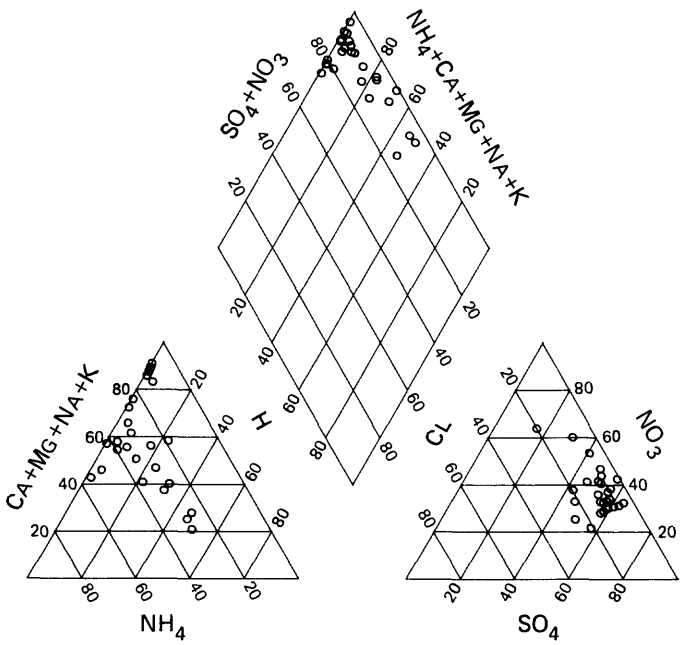
Station summary period: 03/29/1983 to 01/03/1984

Length of summary period: 42 sampling intervals (280 days)

Percent summary period with ppt measurements:	74.7
Percent summary period with chemical samples or no ppt:	62.3
Percent of total measured ppt with chemical samples:	93.0
Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	101.6

Total measured ppt, in mm: 914.9

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	6.4	4.42	0.03	0.013	0.042	0.010	0.12	0.01	0.48	0.68	4.57E-04
10 percentile	.00	7.7	4.56	.11	.020	.045	.016	.15	.08	.83	.76	5.79E-04
25 percentile	.30	11.0	4.91	.36	.033	.084	.037	.21	.15	1.01	1.15	9.32E-04
50 percentile	4.80	12.4	5.41	.63	.059	.138	.054	.30	.22	1.40	1.35	3.89E-03
75 percentile	24.90	18.6	6.03	1.04	.113	.348	.082	.58	.46	2.05	2.36	1.23E-02
90 percentile	53.10	33.1	6.24	1.72	.172	.543	.111	1.05	.64	4.19	4.28	2.77E-02
Maximum value	380.20	41.8	6.34	4.68	.370	2.216	.179	1.72	1.07	5.99	6.02	3.80E-02
Volume-weighted mean	NA	10.9	5.03	.31	.035	.145	.035	.29	.20	.94	1.23	9.34E-03
Arithmetic mean	23.46	16.1	5.41	.87	.083	.295	.061	.45	.30	1.83	1.92	8.60E-03
No. of samples	39	26	26	26	26	26	26	26	26	26	26	26
Total load, g/m^2	NA	NA	NA	0.266	0.030	0.123	0.030	0.246	0.170	0.802	1.048	8.0E-03
Maximum interval load, g/m^2	NA	NA	NA	.041	.005	.032	.008	.072	.053	.182	0.289	4.5E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.30	-0.13	-.43	-.47	-.31	-.34	-.24	-.30	-.46	-.16	0.13
P-level		.031	.343	.002	.001	.026	.016	.089	.032	.001	.243	.343



Percentage composition of major ions for site OK17.

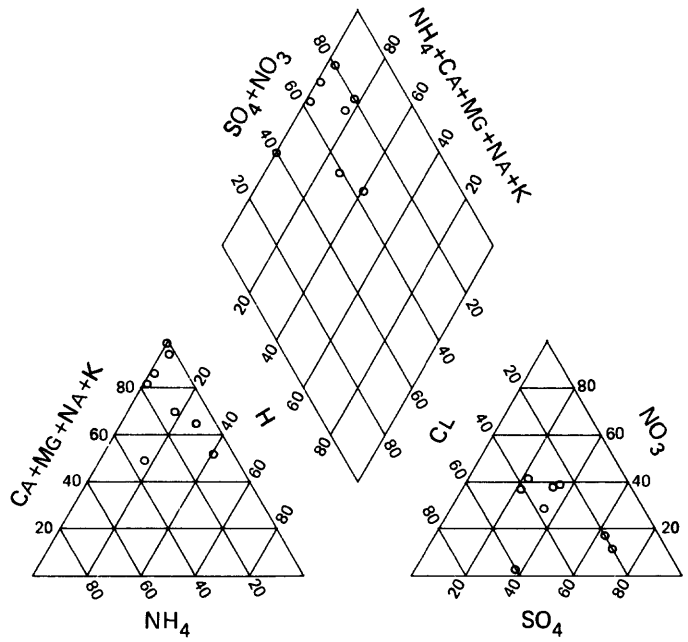
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Silver Lake Ranger, Oregon — Latitude: 43°07'22" Longitude: 121°03'28"
CAL number: OR09 — Map ID number: 81
ADS number: 367a00 — Station summary period: 08/23/1983 to 01/03/1984
Station altitude above mean sea level, in meters: 1334 — Length of summary period: 19 sampling intervals (133 days)

Number of sampling intervals (days in parenthesis):			Percent summary period with ppt measuraments:	35.8
-- With ppt measurements:	19	(133)	Percent summary period with chemical samples or no ppt:	22.6
-- When ppt occurred:	15	(105)	Percent of total measured ppt with chemical samples:	30.2
-- When ppt did not occur:	4	(28)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	77.9
-- When sample volume was substituted for missing rain gage:	0	(0)		
-- With chamical samples:	8	(56)	Total measured ppt, in mm:	186.8

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.0	5.08	0.04	0.008	0.020	0.008	0.01	0.06	0.09	0.05	2.34E-04
10 percentile	.00	2.0	5.08	.04	.008	.020	.008	.01	.06	.09	.05	2.34E-04
25 percentile	.50	2.2	5.55	.05	.014	.042	.012	.01	.07	.11	.14	6.31E-04
50 percentile	5.60	5.7	5.75	.22	.049	.125	.061	.04	.19	.14	.42	1.80E-03
75 percentile	17.30	12.7	6.20	.55	.073	.450	.369	.17	.76	1.01	1.05	2.80E-03
90 percentile	29.20	25.9	6.63	2.00	.349	1.110	.974	.31	1.46	1.40	1.22	8.32E-03
Maximum value	35.80	25.9	6.63	2.00	.349	1.110	.974	.31	1.46	1.40	1.22	8.32E-03
Volume-weighted mean	NA	5.8	5.57	.29	.055	.176	.131	.06	.28	.28	.38	2.70E-03
Arithmetic mean	9.83	8.4	5.84	.44	.079	.286	.215	.09	.43	.47	.58	2.34E-03
No. of samples	19	8	8	8	8	8	8	8	8	8	8	8
Total load, g/m^2	NA	NA	NA	0.016	0.003	0.010	0.007	0.003	0.016	0.016	0.021	1.5E-04
Maximum interval load, g/m^2	NA	NA	NA	.011	.002	.006	.005	.002	.008	.008	.007	5.1E-05
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.55	-0.33	-.59	-.76	-.69	-.47	-.46	-.62	-.37	-.57	0.33
P-level		.062	.262	.044	.009	.018	.105	.124	.034	.209	.058	.262



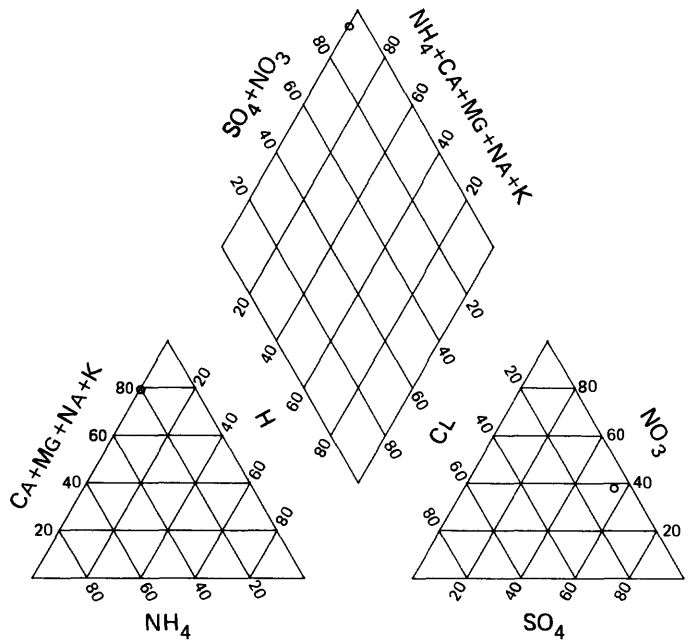
Percentage composition of major ions for site OR09.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Salt Plains National Wildlife Refuge, Oklahoma — Latitude: 36°48'08" Longitude: 98°12'37"
CAL number: OK00 — Map ID number: 79
ADS number: 363a00 — Station summary period: 12/13/1983 to 01/03/1984
Station altitude above mean sea level, in meters: 346 — Length of summary period: 3 sampling intervals (21 days)
Number of sampling intervals (days in parenthesis): — Percent summary period with ppt measurements: 5.7
-- With ppt measurements: 3 (21) — Percent summary period with chemical samples or no ppt: 3.8
-- When ppt occurred: 2 (14) — Percent of total measured ppt with chemical samples: 50.0
-- When ppt did not occur: 1 (7) — Percent of total measured ppt in raingage that was collected in the wet-sample bucket:
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 1 (7) — Total measured ppt, in mm: 0.2

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.10	23.4	6.29	1.04	0.239	0.696	0.251	0.50	0.30	3.03	3.43	5.13E-04
10 percentile	.10	23.4	6.29	1.04	.239	.696	.251	.50	.30	3.03	3.43	5.13E-04
25 percentile	.10	23.4	6.29	1.04	.239	.696	.251	.50	.30	3.03	3.43	5.13E-04
50 percentile	.10	23.4	6.29	1.04	.239	.696	.251	.50	.30	3.03	3.43	5.13E-04
75 percentile	.10	23.4	6.29	1.04	.239	.696	.251	.50	.30	3.03	3.43	5.13E-04
90 percentile	.10	23.4	6.29	1.04	.239	.696	.251	.50	.30	3.03	3.43	5.13E-04
Maximum value	.10	23.4	6.29	1.04	.239	.696	.251	.50	.30	3.03	3.43	5.13E-04
Volume-weighted mean	NA	23.4	6.29	1.04	.242	.696	.252	.50	.30	3.03	3.43	5.13E-04
Arithmetic mean	.10	23.4	6.29	1.04	.239	.696	.251	.50	.30	3.03	3.43	5.13E-04
No. of samples	2	1	1	1	1	1	1	1	1	1	1	1
Total load, g/m^2	NA	NA	NA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	7.6E-08
Maximum interval load, g/m	NA	NA	NA	.000	.000	.000	.000	.000	.000	.000	.001	7.6E-08
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau												
P-level												



Percentage composition of major ions for site OK00.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: H.J. Andrews, Oregon — Latitude: 44°13'23" Longitude: 122°14'32"

CAL number: OR10 — Map ID number: 82

ADS number: 061a00

Station altitude above mean sea level, in meters: 472

Number of sampling intervals (days in parenthesis):

-- With ppt measurements:	53	(371)
-- When ppt occurred:	51	(357)
-- When ppt did not occur:	2	(14)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	32	(225)

Station summary period: 12/28/1982 to 01/03/1984

Length of summary period: 53 sampling intervals (371 days)

Percent summary period with ppt measurements: 100.0

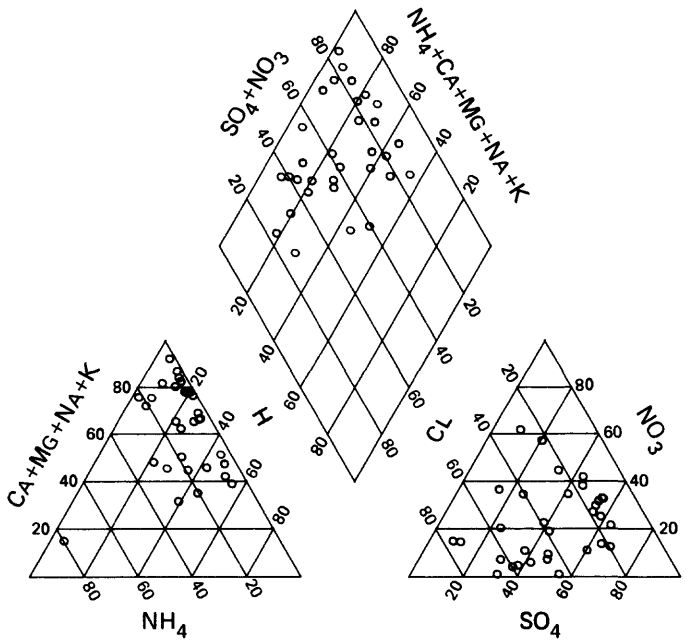
Percent summary period with chemical samples or no ppt: 64.4

Percent of total measured ppt with chemical samples: 59.4

Percent of totel measured ppt in raingage that was collected in the wet-sample bucket: 95.8

Total measured ppt, in mm: 2587.4

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.1	4.64	0.01	0.005	0.013	0.002	0.01	0.04	0.01	0.05	5.25E-04
10 percentile	.30	2.7	4.86	.01	.009	.030	.007	.01	.06	.06	.05	2.08E-03
25 percentile	6.35	3.3	5.17	.03	.016	.069	.013	.01	.12	.09	.26	2.90E-03
50 percentile	28.50	4.4	5.34	.06	.030	.148	.019	.01	.24	.18	.43	4.52E-03
75 percentile	85.35	6.8	5.54	.16	.049	.279	.029	.08	.49	.50	.68	6.76E-03
90 percentile	135.42	14.8	5.68	.23	.063	.461	.081	.30	.65	1.21	1.43	1.44E-02
Maximum value	173.00	32.1	6.28	1.29	.447	1.404	.513	1.92	1.28	4.45	2.53	2.29E-02
Volume-weighted mean	NA	3.9	5.42	.04	.026	.175	.014	.03	.30	.14	.33	3.78E-03
Arithmetic mean	48.82	6.6	5.34	.14	.050	.222	.044	.14	.32	.48	.58	5.94E-03
No. of samples	53	32	32	32	32	32	32	32	32	32	32	32
Total load, g/m^2	NA	NA	NA	0.065	0.040	0.269	0.021	0.042	0.463	0.212	0.503	5.8E-03
Maximum interval load, g/m^2	NA	NA	NA	.007	.004	.031	.002	.012	.056	.020	.054	5.2E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.56	0.43	-.67	-.37	-.14	-.69	-.51	-.05	-.64	-.47	-0.43
P-level		.000	.001	.000	.004	.270	.000	.000	.709	.000	.000	.001



Percentage composition of major ions for site OR10.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Hyslop, Oregon — Latitude: 44°38'04" Longitude: 123°11'24"
CAL number: OR97 — Map ID number: 84
ADS number: 366a00
Station altitude above mean sea level, in meters: 69
Number of sampling intervals (days in parenthesis):

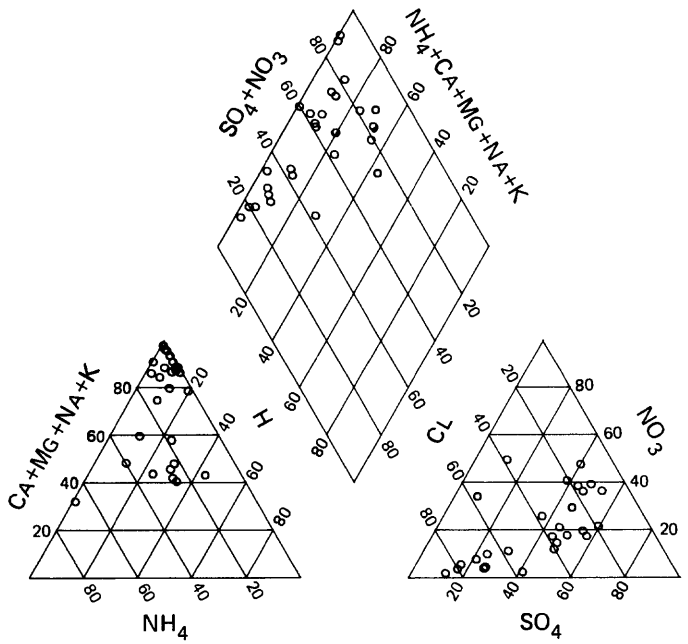
-- With ppt measurements:	36	(252)
-- When ppt occurred:	33	(231)
-- When ppt did not occur:	3	(21)
-- When sample volume was substituted for missing rain gage:	1	(7)
-- With chemical samples:	27	(189)

Station summary period: 04/26/1983 to 01/03/1984
Length of summary period: 36 sampling intervals (252 days)

Percent summary period with ppt measurements:	67.9
Percent summary period with chemical samples or no ppt:	56.6
Percent of total measured ppt with chemical samples:	94.9
Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	91.8

Total measured ppt, in mm: 624.3

Ststistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.9	4.63	0.02	0.007	0.032	0.008	0.01	0.08	0.04	0.05	3.31E-04
10 percentile	.21	3.6	4.93	.05	.014	.060	.015	.01	.12	.12	.25	6.19E-04
25 percentile	1.42	6.2	5.22	.07	.032	.123	.024	.01	.19	.20	.46	1.95E-03
50 percentile	7.25	7.0	5.43	.10	.063	.321	.042	.06	.44	.26	.56	3.72E-03
75 percentile	28.30	10.2	5.71	.20	.091	.634	.085	.09	1.07	.70	.86	6.03E-03
90 percentile	55.62	16.1	6.22	.41	.142	.974	.123	.26	1.78	1.29	1.37	1.18E-02
Maximum value	83.10	20.7	6.48	.86	.252	2.100	.150	.87	3.85	1.98	1.85	2.34E-02
Volume-weighted mean	NA	8.2	5.40	.09	.088	.677	.039	.05	1.23	.27	.53	4.01E-03
Arithmetic mean	17.34	8.4	5.48	.17	.074	.433	.055	.11	.72	.49	.71	5.10E-03
No. of samples	36	27	27	27	27	27	27	27	27	27	27	27
Total load, g/m^2	NA	NA	NA	0.052	0.052	0.401	0.023	0.032	0.727	0.159	0.315	2.4E-03
Maximum interval load, g/m^2	NA	NA	NA	.009	.021	.174	.007	.005	.320	.017	.065	2.7E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.18	0.07	-.67	-.15	.03	-.47	-.09	.11	-.37	-.35	-0.07
P-level		.189	.631	.000	.260	.802	.001	.533	.404	.008	.012	.631



Percentage composition of major ions for site OR97.

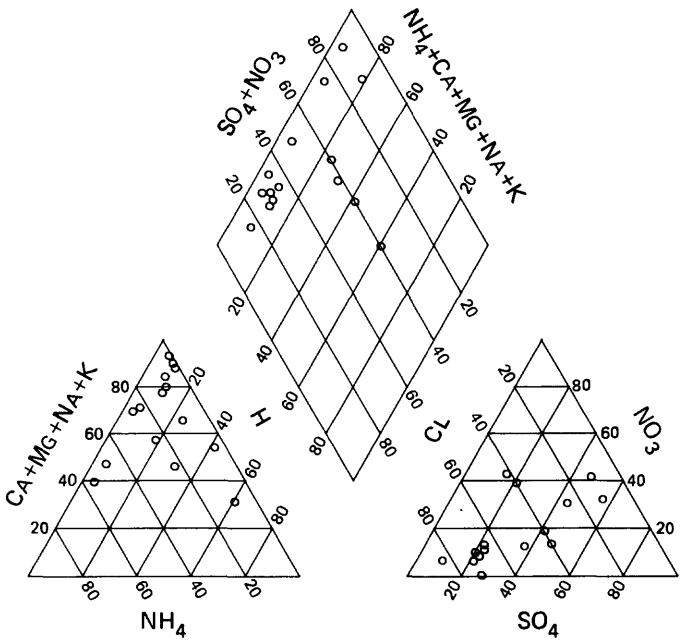
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Schmidt Farm, Oregon — Latitude: 44°37'35" Longitude: 123°12'50"
CAL number: OR99 — Map ID number: 84
ADS number: 060a00
Station altitude above mean sea level, in meters: 69
Number of sampling intervals (days in psrenthesis):
-- With ppt measurements: 17 (119)
-- When ppt occurred: 17 (119)
-- When ppt did not occur: 0 (0)
-- When sample volume was substituted for missing rain gage: 15 (105)
-- With chemical samples: 15 (105)

Station summary period: 12/28/1982 to 04/26/1983
Length of summary period: 17 sampling intervals (119 days)
Percent summary period with ppt measurements: 32.1
Percent summary period with chemical samples or no ppt: 28.3
Percent of total measured ppt with chemical samples: 95.2
Percent of total measured ppt in raingage that was collected in the wet-sample bucket:
Total measured ppt, in mm: 611.1

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.10	2.4	5.26	0.01	0.004	0.026	0.003	0.01	0.07	0.01	0.05	1.38E-03
10 percentile	2.66	2.5	5.27	.02	.007	.040	.005	.01	.09	.06	.05	1.42E-03
25 percentile	18.65	3.5	5.39	.04	.023	.083	.011	.01	.13	.12	.27	2.57E-03
50 percentile	29.10	5.7	5.48	.06	.054	.249	.024	.05	.39	.18	.39	3.31E-03
75 percentile	55.45	6.7	5.59	.09	.071	.548	.029	.13	1.02	.42	.65	4.07E-03
90 percentile	77.40	8.9	5.85	.16	.092	.717	.040	.33	1.34	.67	.74	5.42E-03
Maximum value	88.60	9.1	5.86	.17	.096	.757	.049	.35	1.44	.85	.75	5.50E-03
Volume-weighted mean	NA	5.1	5.45	.05	.049	.364	.021	.06	.66	.18	.34	3.54E-03
Arithmetic mean	35.95	5.3	5.52	.07	.048	.323	.022	.10	.58	.27	.40	3.30E-03
No. of samples	17	15	15	15	15	15	15	15	15	15	15	15
Total load, g/m^2	NA	NA	NA	0.031	0.029	0.212	0.012	0.033	0.386	0.102	0.200	2.1E-03
Maximum interval load, g/m^2	NA	NA	NA	.008	.006	.049	.003	.008	.090	.016	.046	4.8E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.09	-0.23	-.44	.02	.24	.05	-.42	.20	-.62	-.39	0.23
P-level		.656	.234	.025	.921	.216	.804	.034	.299	.002	.042	.234



Percentage composition of major ions for site OR99.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Pennsylvania State NTN, Pennsylvania — Latitude: 40°47'18" Longitude: 77°56'47"

CAL number: PA15 — Map ID number: 85

ADS number: 065b00

Station altitude above mean sea level, in meters: 393

Number of sampling intervals (days in parenthesis):

-- With ppt measurements:	30	(210)
-- When ppt occurred:	29	(203)
-- When ppt did not occur:	1	(7)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	22	(154)

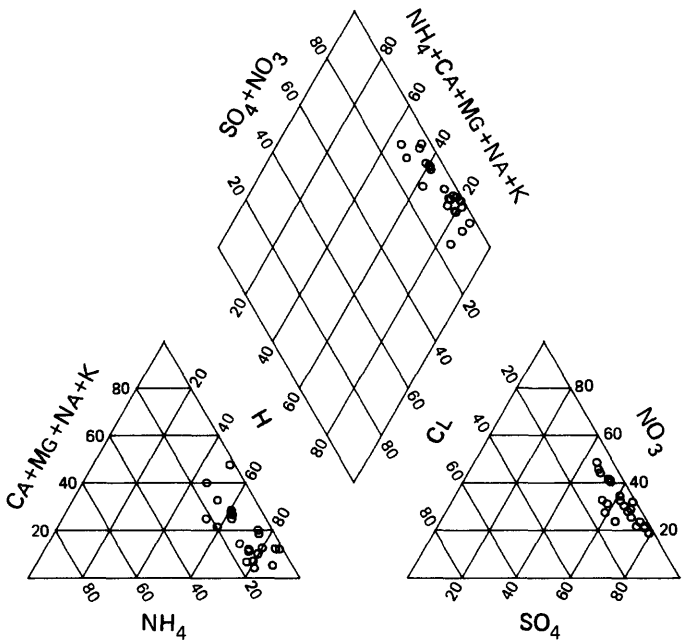
Station summary period: 06/07/1983 to 01/03/1984

Length of summary period: 30 sampling intervals (210 days)

Percent summary period with ppt measurements:	56.6
Percent summary period with chemical samples or no ppt:	43.4
Percent of total measured ppt with chemical samples:	80.7
Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	98.0

Total measured ppt, in mm: 585.5

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonie as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	8.0	3.52	0.02	0.006	0.018	0.004	0.01	0.06	0.49	0.79	1.07E-02
10 percentile	1.40	9.0	3.60	.05	.008	.019	.006	.01	.08	.52	.84	1.46E-02
25 percentile	7.37	12.1	3.95	.07	.014	.027	.010	.07	.11	.83	1.17	1.96E-02
50 percentile	13.45	29.3	4.28	.13	.021	.054	.015	.13	.15	1.66	2.14	5.19E-02
75 percentile	31.70	51.6	4.71	.37	.058	.099	.041	.28	.26	3.07	4.38	1.12E-01
90 percentile	44.50	118.7	4.84	.43	.094	.215	.048	1.05	.31	6.15	11.75	2.51E-01
Maximum value	59.90	141.0	4.97	1.06	.289	.277	.125	1.46	.46	6.90	18.05	3.02E-01
Volume-weighted mean	NA	32.2	4.18	.12	.023	.049	.016	.18	.14	1.67	2.98	6.52E-02
Arithmetic mean	19.52	43.5	4.26	.22	.045	.076	.027	.29	.18	2.34	4.17	8.66E-02
No. of samples	30	22	22	22	22	22	22	22	22	22	22	22
Total load, g/m^2	NA	NA	NA	0.057	0.011	0.023	0.008	0.085	0.068	0.787	1.409	3.1E-02
Maximum interval load, g/m^2	NA	NA	NA	.006	.001	.003	.001	.017	.009	.082	.266	4.4E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.23	0.16	-.54	-.55	-.45	-.43	-.24	-.29	-.30	-.21	-0.16
P-level		.142	.310	.001	.000	.003	.006	.127	.066	.052	.167	.310



Percentage composition of major ions for site PA15.

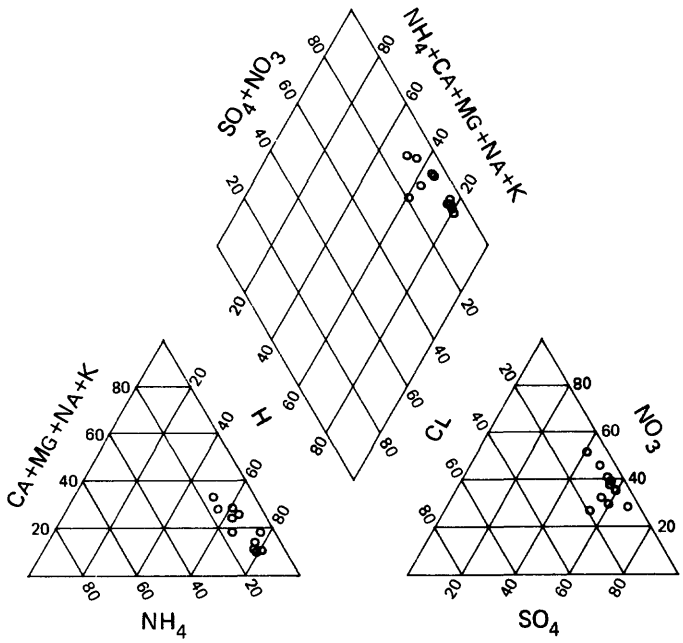
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Pennsylvania State NTN-2, Pennsylvania — Latitude: 40°47'18" Longitude: 77°56'47"
CAL number: 15PA — Map ID number: 85
ADS number: 065c00
Station altitude above mean sea level, in meters: 393
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 13 (91)
-- When ppt occurred: 13 (91)
-- When ppt did not occur: 0 (0)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 11 (77)

Station summary period: 10/04/1983 to 01/03/1984
Length of summary period: 13 sampling intervals (91 days)
Percent summary period with ppt measurements: 24.5
Percent summary period with chemical samples or no ppt: 20.8
Percent of total measured ppt with chemical samples: 78.9
Percent of total measured ppt in raingege that was collected in the wet-sample bucket: 94.6
Total measured ppt, in mm: 338.9

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	2.30	7.3	3.93	0.04	0.012	0.026	0.005	0.06	0.08	0.53	0.57	1.12E-02
10 percentile	3.42	7.4	3.94	.04	.012	.026	.006	.06	.09	.55	.62	1.13E-02
25 percentile	9.90	12.2	4.21	.06	.014	.033	.012	.07	.12	.89	1.00	2.24E-02
50 percentile	25.40	25.1	4.31	.07	.020	.063	.014	.12	.14	1.50	1.73	4.90E-02
75 percentile	40.90	27.3	4.65	.15	.035	.119	.033	.15	.25	2.06	2.27	6.17E-02
90 percentile	53.82	60.6	4.95	.36	.089	.302	.054	.27	.33	3.87	5.43	1.15E-01
Maximum value	59.90	60.6	4.95	.36	.099	.341	.057	.28	.35	4.10	5.44	1.17E-01
Volume-weighted mean	NA	20.6	4.40	.08	.020	.069	.016	.11	.16	1.33	1.59	3.97E-02
Arithmetic mean	26.07	26.4	4.41	.13	.029	.092	.022	.13	.17	1.70	2.15	4.96E-02
No. of samples	13	11	11	11	11	11	11	11	11	11	11	11
Total load, g/m^2	NA	NA	NA	0.021	0.005	0.018	0.004	0.029	0.042	0.356	0.424	1.1E-02
Maximum interval load, g/m^2	NA	NA	NA	0.004	.001	.006	.001	.006	.010	.066	.085	2.3E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.22	0.16	-.41	-.29	-.24	-.51	-.20	-.18	-.42	-.13	-0.16
P-level		.349	.484	.083	.212	.312	.029	.389	.435	.073	.586	.484



Percentage composition of major ions for site 15PA.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

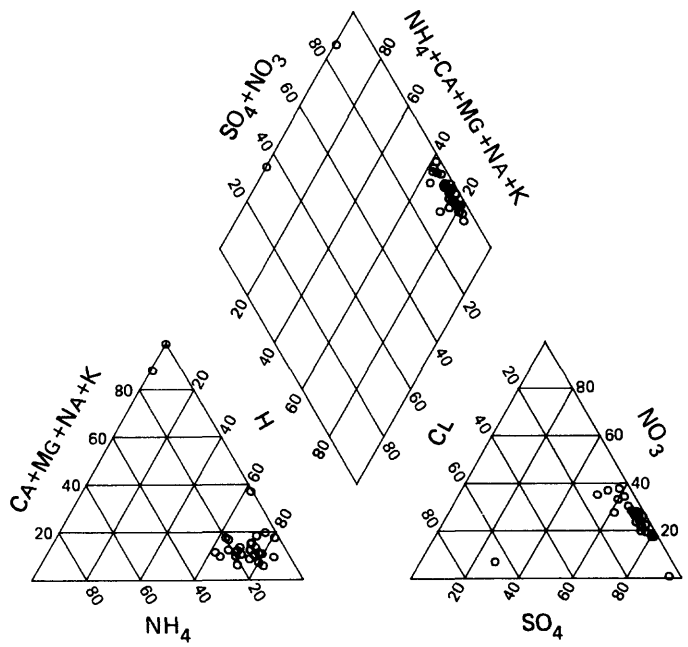
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Kane, Pennsylvania — Latitude: 41°35'52" Longitude: 78°46'04"
CAL number: PA29 — Map ID number: 86
ADS number: 063a00 — Station summary period: 12/28/1982 to 01/03/1984
Station altitude above mean sea level, in meters: 618 — Length of summary period: 53 sampling intervals (371 days)
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 53 (371)
-- When ppt occurred: 52 (364)
-- When ppt did not occur: 1 (7)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 28 (196)

Percent summary period with ppt measurements: 100.0
Percent summary period with chemical samples or no ppt: 54.7
Percent of total measured ppt with chemicel samples: 61.3
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 94.8

Total measured ppt, in mm: 1281.1

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	10.6	3.47	0.02	0.004	0.015	0.008	0.01	0.04	0.01	0.91	4.37E-04
10 percentile	1.50	14.1	3.81	.05	.011	.024	.011	.01	.05	.55	1.18	1.85E-02
25 percentile	9.40	22.9	4.00	.08	.016	.034	.016	.10	.10	.84	1.95	3.11E-02
50 percentile	21.80	31.8	4.18	.12	.024	.044	.028	.21	.12	1.46	3.02	6.61E-02
75 percentile	33.65	51.0	4.51	.29	.047	.067	.044	.42	.17	2.23	5.82	9.93E-02
90 percentile	51.74	73.9	4.83	.66	.103	.161	.073	.82	.41	4.38	7.66	1.54E-01
Maximum value	69.10	154.7	6.36	2.75	.332	2.210	.259	1.25	4.29	5.23	17.53	3.39E-01
Volume-weighted mean	NA	35.7	4.14	.16	.028	.068	.031	.30	.16	1.53	3.51	7.23E-02
Arithmetic mean	24.17	40.1	4.32	.29	.049	.143	.041	.31	.32	1.85	4.11	7.85E-02
No. of samples	53	28	28	28	28	28	28	28	28	28	28	28
Total load, g/m^2	NA	NA	NA	0.125	0.022	0.054	0.024	0.236	0.126	1.203	2.756	5.7E-02
Maximum interval load, g/m^2	NA	NA	NA	.022	.003	.018	.002	.032	.035	.149	0.388	7.9E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.19	0.04	-.40	-.43	-.22	-.22	.03	-.33	-.19	-.22	-0.04
P-level		.149	.782	.003	.001	.109	.101	.797	.015	.161	.097	.782



Percentage composition of major ions for site PA29.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Milford, Pennsylvania (Gifford Pinchot) Latitude: 41°19'39" Longitude: 74°49'13"

CAL number: PA72 Map ID number: 88

ADS number: 371a00

Station altitude above mean sea level, in meters: 212

Number of sampling intervals (days in parenthesis):

-- With ppt measurements:	1	(7)
-- When ppt occurred:	1	(7)
-- When ppt did not occur:	0	(0)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	1	(7)

Station summary period: 12/27/1983 to 01/03/1984

Length of summary period: 1 sampling intervals (7 days)

Percent summary period with ppt measurements: 1.9

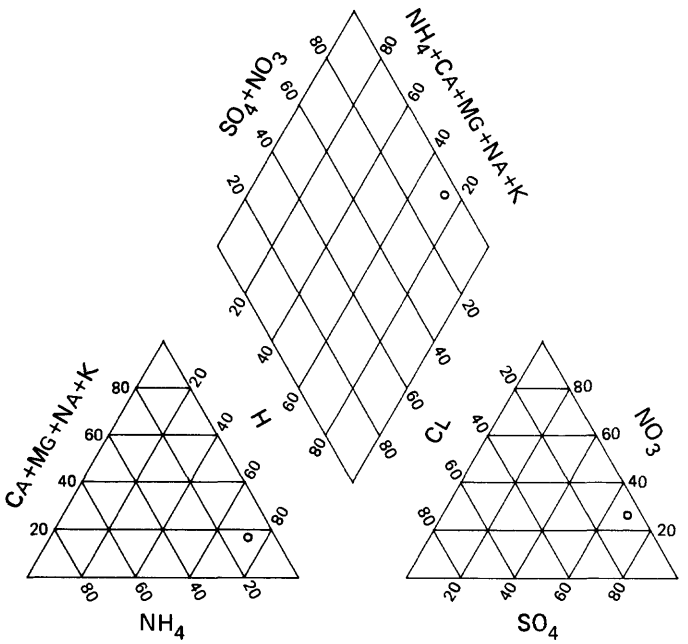
Percent summary period with chemical samples or no ppt: 1.9

Percent of total measured ppt with chemical samples: 100.0

Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 101.2

Total measured ppt, in mm: 25.4

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	25.40	12.3	4.63	0.04	0.010	0.054	0.011	0.06	0.07	0.61	1.22	2.34E-02
10 percentile	25.40	12.3	4.63	.04	.010	.054	.011	.06	.07	.61	1.22	2.34E-02
25 percentile	25.40	12.3	4.63	.04	.010	.054	.011	.06	.07	.61	1.22	2.34E-02
50 percantile	25.40	12.3	4.63	.04	.010	.054	.011	.06	.07	.61	1.22	2.34E-02
75 percentile	25.40	12.3	4.63	.04	.010	.054	.011	.06	.07	.61	1.22	2.34E-02
90 percentile	25.40	12.3	4.63	.04	.010	.054	.011	.06	.07	.61	1.22	2.34E-02
Maximum value	25.40	12.3	4.63	.04	.010	.054	.011	.06	.07	.61	1.22	2.34E-02
Volume-weighted mean	NA	12.3	4.63	.04	.010	.054	.011	.06	.07	.61	1.22	2.34E-02
Arithmetic mean	25.40	12.3	4.63	.04	.010	.054	.011	.06	.07	.61	1.22	2.34E-02
No. of samples	1	1	1	1	1	1	1	1	1	1	1	1
Total load, g/m^2	NA	NA	NA	0.001	0.000	0.001	0.000	0.002	0.002	0.015	0.031	6.0E-04
Maximum interval load, g/m^2	NA	NA	NA	.001	.000	.001	.000	.002	.002	.015	.031	6.0E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau												
P-level												



Percentage composition of major ions for site PA72.

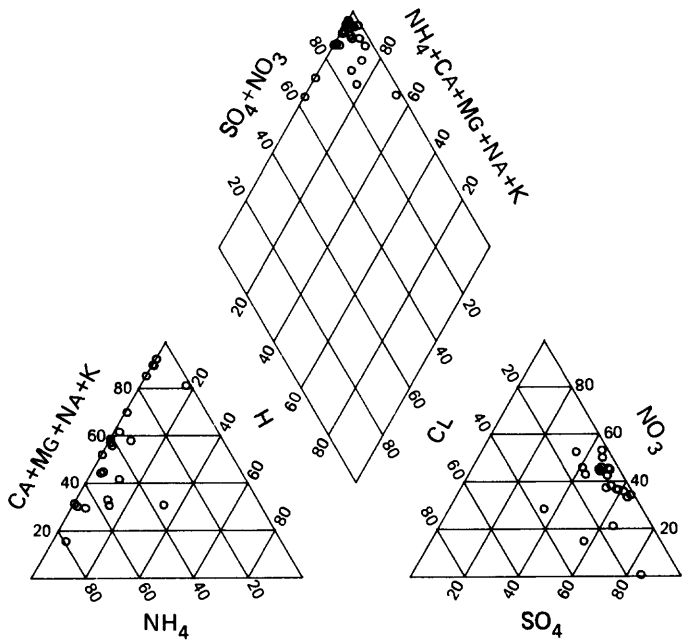
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Huron, South Dakota — Latitude: 44°23'02" Longitude: 98°13'14"
CAL number: SD00 Mep ID number: 89
ADS number: 067a00
Station altitude above mean sea level, in meters: 390
Number of sampling intervals (days in perenthesis):
-- With ppt measurements: 29 (273)
-- When ppt occurred: 28 (266)
-- When ppt did not occur: 1 (7)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 22 (210)

Station summary period: 12/21/1982 to 09/20/1983
Length of summary period: 29 sampling intervals (273 days)
Percent summsry period with ppt measurements: 73.5
Percent summsry period with chemicsl samples or no ppt: 58.5
Percent of total measured ppt with chemicel samples: 91.2
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 82.2
Total measured ppt, in mm: 383.9

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	5.3	4.69	0.04	0.012	0.028	0.013	0.01	0.01	0.01	0.39	1.74E-04
10 percentile	.30	5.7	5.16	.14	.024	.036	.015	.22	.04	.56	.70	3.92E-04
25 percentile	1.00	9.2	5.32	.19	.044	.054	.026	.33	.09	.77	1.00	6.91E-04
50 percentile	4.30	13.1	5.87	.47	.062	.094	.061	.51	.14	1.33	1.40	1.36E-03
75 percentile	27.30	21.1	6.17	1.17	.285	.296	.138	.78	.31	2.43	2.48	4.79E-03
90 percentile	43.70	32.2	6.41	1.64	.468	1.968	.190	1.99	.61	3.69	3.70	6.98E-03
Maximum value	44.70	35.7	6.76	2.29	.799	2.245	.454	2.08	.67	4.92	6.09	2.04E-02
Volume-weighted mean	NA	10.6	5.34	.42	.073	.081	.061	.50	.10	1.27	1.30	4.58E-03
Arithmetic mean	13.24	15.9	5.79	.71	.172	.399	.095	.73	.22	1.72	1.84	3.15E-03
No. of samples	29	22	22	22	22	22	22	22	22	22	22	22
Total load, g/m^2	NA	NA	NA	0.146	0.026	0.028	0.021	0.173	0.035	0.445	0.457	1.6E-03
Msximum interval load, g/m^2	NA	NA	NA	.021	.005	.003	.004	.030	.006	.077	.062	4.6E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-.47	-0.47	-.31	-.47	-.63	-.31	-.18	-.63	-.19	-.32	0.47
P-level		.002	.002	.048	.002	.000	.045	.246	.000	.224	.042	.002



Percentage composition of major ions for site SD00.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

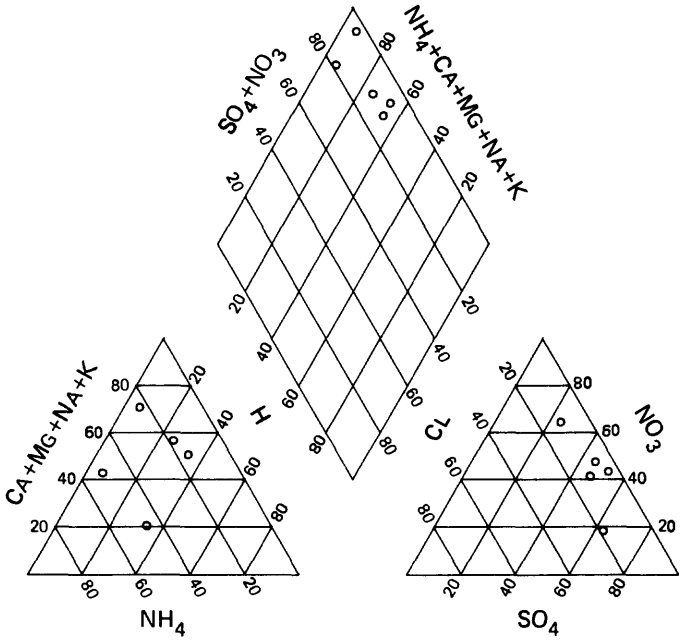
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Cottonwood, South Dakota — Latitude: 43°56'57" Longitude: 101°51'30"
CAL number: SD08 — Map ID number: 90
ADS number: 373a00
Station altitude above mean sea level, in meters: 733
Number of sampling intervals (days in parenthesis):
-- With ppt measurements: 11 (84)
-- When ppt occurred: 9 (70)
-- When ppt did not occur: 2 (14)
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: 5 (35)

Station summary period: 10/11/1983 to 01/03/1984
Length of summary period: 11 sampling intervals (84 days)
Percent summary period with ppt measurements: 22.6
Percent summary period with chemical samples or no ppt: 13.2
Percent of total measured ppt with chemical samples: 60.9
Percent of total measured ppt in raingage that was collected in the wet-sample bucket: 80.9

Total measured ppt, in mm: 58.5

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	6.3	4.79	0.10	0.022	0.062	0.019	0.07	0.11	0.74	0.62	5.62E-03
10 percentile	.00	6.3	4.79	.10	.022	.062	.019	.07	.11	.74	.62	5.62E-03
25 percentile	0.00	9.0	4.83	.11	.023	.068	.030	.12	.12	1.05	.63	6.43E-03
50 percentile	4.10	13.0	5.07	.23	.083	.081	.071	.40	.16	1.98	1.01	8.51E-03
75 percentile	12.20	17.4	5.19	.65	.129	.425	.116	.76	.67	2.65	4.08	1.47E-02
90 percentile	12.66	18.7	5.25	.78	.168	.651	.127	1.10	1.13	3.14	5.23	1.62E-02
Maximum value	12.70	18.7	5.25	.78	.168	.651	.127	1.10	1.13	3.14	5.23	1.62E-02
Volume-weighted mean	NA	11.7	4.95	.26	.044	.093	.050	.41	.15	1.56	1.33	1.12E-02
Arithmetic mean	5.32	13.2	5.03	.35	.078	.214	.073	.43	.35	1.87	2.09	1.02E-02
No. of samples	11	5	5	5	5	5	5	5	5	5	5	5
Total load, g/m^2	NA	NA	NA	0.009	0.002	0.003	0.002	0.014	0.005	0.056	0.047	4.0E-04
Maximum interval load, g/m^2	NA	NA	NA	.006	.001	.001	.001	.008	.002	.022	.021	2.0E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.40	-0.40	-.40	-.80	-.80	-.60	-.40	-.80	-.40	-.40	0.40
P-level		.327	.327	.327	.050	.050	.142	.327	.050	.327	.327	.327



Percentage composition of major ions for site SD08.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Huron Well Field, South Dakota — Latitude: 44°21'18" Longitude: 98°17'38"
CAL number: SD99 — Map ID number: 91
ADS number: 372a00 — Station summary period: 11/29/1983 to 01/03/1984
Station altitude above mean sea level, in meters: 398 — Length of summary period: 5 sampling intervals (35 days)
Number of sampling intervals (days in parenthesis): — Percent summary period with ppt measurements: 9.4

-- With ppt measurements:	5	(35)	Percent summary period with chemical samples or no ppt:
-- When ppt occurred:	4	(28)	Percent of total measured ppt with valid samples:
-- When ppt did not occur:	1	(7)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket:
-- When sample volume was substituted for missing rain gage:	0	(0)	
-- With chemical samples:		( )	Total measured ppt, in mm: 7.5

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00											
10 percentile	.00											
25 percentile	.15											
50 percentile	.30											
75 percentile	3.45											
90 percentile	6.60											
Maximum value	6.60											
Volume-weighted mean	NA											
Arithmetic mean	1.50											
No. of samples	5											
Total load, g/m^2	NA	NA	NA									
Maximum interval load, g/m^2	NA	NA	NA									
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau												
P-level												

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Elkmont, Tennessee — Latitude: 35°39'52" Longitude: 83°35'25"

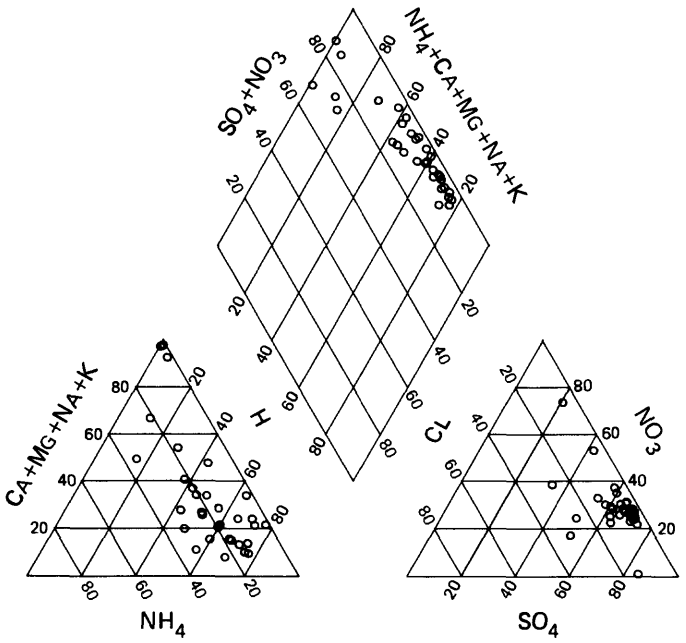
CAL number: TN11 — Map ID number: 93

ADS number: 028a00 — Station summary period: 12/28/1982 to 01/03/1984

Station altitude above mean sea level, in meters: 640 — Length of summary period: 51 sampling intervals (371 days)

Number of sampling intervals (days in parenthesis):			Percent summary period with ppt measurements:	100.0
-- With ppt measurements:	51	(371)	Percent summary period with chemical samples or no ppt:	63.9
-- When ppt occurred:	51	(371)	Percent of total measured ppt with chemical samples:	69.1
-- When ppt did not occur:	0	(0)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	95.8
-- When sample volume was substituted for missing rain gage:	6	(42)		
-- With chemical samples:	32	(234)	Total measured ppt, in mm: 1440.0	

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	3.2	3.81	0.02	0.003	0.013	0.005	0.01	0.01	0.01	0.05	6.46E-04
10 percentile	.50	4.2	3.91	.04	.008	.022	.012	.01	.06	.26	.48	1.94E-03
25 percentile	10.90	7.6	4.35	.07	.016	.032	.019	.06	.08	.53	.81	7.16E-03
50 percentile	22.20	15.7	4.60	.14	.024	.056	.035	.15	.09	.84	1.60	2.51E-02
75 percentile	38.60	26.1	5.14	.24	.042	.119	.073	.28	.19	1.29	2.32	4.47E-02
90 percentile	68.64	63.7	5.76	.50	.087	.201	.185	.54	.32	3.58	6.99	1.22E-01
Maximum value	107.20	86.8	6.19	2.41	.412	.904	.449	1.59	.87	4.93	9.33	1.55E-01
Volume-weighted mean	NA	14.6	4.59	.13	.024	.064	.060	.15	.11	.75	1.45	2.56E-02
Arithmetic mean	28.24	22.0	4.73	.25	.045	.106	.068	.23	.16	1.25	2.29	3.82E-02
No. of samples	51	32	32	32	32	32	32	32	32	32	32	32
Total load, g/m^2	NA	NA	NA	0.129	0.023	0.064	0.060	0.148	0.112	0.743	1.439	2.5E-02
Maximum interval load, g/m^2	NA	NA	NA	.021	.004	.011	.018	.020	.015	.084	.195	3.8E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.38	0.25	-.27	-.39	-.36	-.24	-.22	-.31	-.50	-.35	-0.25
P-level		.002	.043	.033	.002	.004	.058	.082	.014	.000	.006	.043



Percentage composition of major ions for site TN11.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: LBJ Netional Grasslands, Texas — Latitude: 33°23'30" Longitude: 97°38'23"

CAL number: TX56 — Map ID number: 96

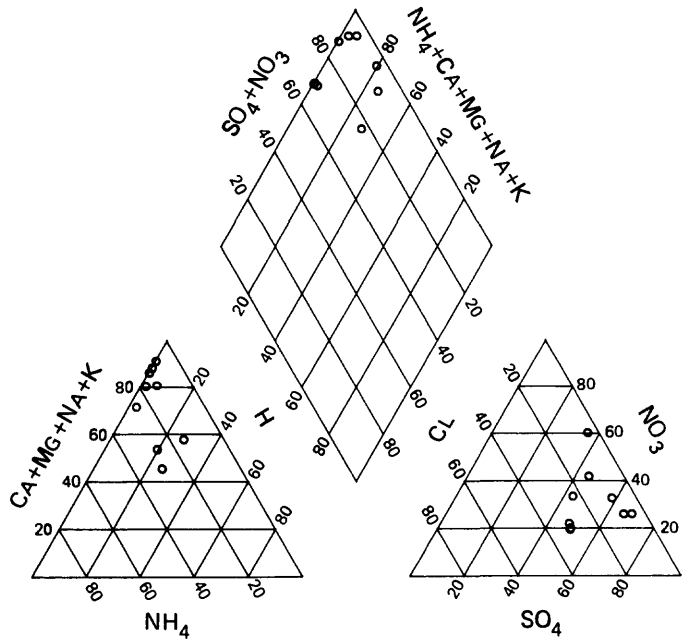
ADS number: 378a00 — Station summary period: 09/20/1983 to 01/03/1984

Station altitude above mean sea level, in meters: 312 — Length of summary period: 14 sampling intervals (105 days)

Number of sampling intervals (days in parenthesis):

-- With ppt measurements:	14	(105)	Percent summary period with ppt measurements:	28.3
-- When ppt occurred:	12	(91)	Percent summary period with chemical samples or no ppt:	22.6
-- When ppt did not occur:	2	(14)	Percent of total measured ppt with chemical samples:	99.9
-- When sample volume was substituted for missing rain gage:	3	(0)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	93.4
-- With chemical samples:	9	(70)	Total measured ppt, in mm:	227.1

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Ne, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	7.2	4.61	0.30	0.016	0.030	0.012	0.16	0.06	0.63	0.71	3.98E-04
10 percentile	.00	7.2	4.61	.30	.016	.030	.012	.16	.06	.63	.71	3.98E-04
25 percentile	.10	9.3	5.04	.35	.034	.192	.022	.20	.19	.91	1.19	5.03E-04
50 percentile	1.95	15.7	5.36	1.23	.116	.409	.065	.24	.49	1.56	1.86	4.37E-03
75 percentile	14.95	21.4	6.30	1.66	.167	.517	.091	.30	.75	2.17	3.45	9.33E-03
90 percentile	88.40	22.7	6.40	1.83	.194	.649	.124	.69	.86	3.20	4.43	2.45E-02
Maximum value	132.10	22.7	6.40	1.83	.194	.649	.124	.69	.86	3.20	4.43	2.45E-02
Volume-weighted mean	NA	10.9	5.10	.58	.040	.199	.033	.23	.31	.98	1.33	7.88E-03
Arithmetic mean	16.22	15.4	5.58	1.04	.107	.372	.063	.29	.47	1.60	2.20	6.29E-03
No. of samples	14	9	9	9	9	9	9	9	9	9	9	9
Total load, g/m^2	NA	NA	NA	0.131	0.009	0.045	0.007	0.051	0.070	0.221	0.302	1.8E-03
Maximum interval load, g/m^2	NA	NA	NA	.042	.002	.014	.002	.032	.022	.128	.176	1.6E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.65	0.08	-.20	-.82	-.08	-.40	-.51	-.03	-.70	-.70	-0.08
P-level		.016	.753	.463	.002	.753	.140	.058	.917	.009	.009	.753



Percentage composition of major ions for site TX56.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Logan, Utah — Latitude: 41°39'30" Longitude: 111°53'49"
CAL number: UT01 — Map ID number: 97
ADS number: 357a00 — Station summary period: 12/06/1983 to 01/03/1984
Station altitude above mean sea level, in meters: 1370 — Length of summary period: 4 sampling intervals (28 days)
Number of sampling intervals (days in parenthesis): — Percent summary period with ppt measurements: 7.5
-- With ppt measurements: 4 (28) — Percent summary period with chemical samples or no ppt:
-- When ppt occurred: 4 (28) — Percent of total measured ppt with valid samples:
-- When ppt did not occur: 0 (0) — Percent of total measured ppt in raingage that was collected in the wet-sample bucket:
-- When sample volume was substituted for missing rain gage: 0 (0)
-- With chemical samples: ( ) — Total measured ppt, in mm: 61.6

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	4.30											
10 percentile	4.30											
25 percentile	5.90											
50 percentile	16.95											
75 percentile	23.35											
90 percentile	23.40											
Maximum value	23.40											
Volume-weighted mean	NA											
Arithmetic mean	15.40											
No. of samples	4											
Total load, g/m^2	NA	NA	NA									
Maximum interval load, g/m^2	NA	NA	NA									
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau												
P-level												

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Big Meadows, Virginie — Latitude: 38°30'51" Longitude: 78°25'45"

CAL number: VA28 — Map ID number: 99

ADS number: 250a01 — Station summary period: 12/28/1982 to 01/03/1984

Station altitude above mean sea level, in meters: 1047 — Length of summary period: 53 sampling intervals (371 days)

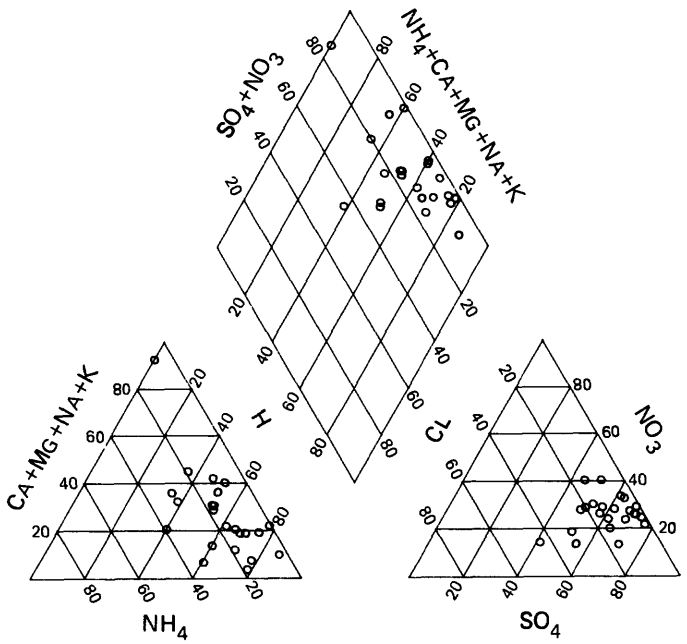
Number of sampling intervals (days in parenthesis):

-- With ppt measurements:	53	(371)
-- When ppt occurred:	52	(364)
-- When ppt did not occur:	1	(7)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chemical samples:	23	(161)

Percent summary period with ppt measurements:	100.0
Percent summary period with chemical samples or no ppt:	45.3
Percent of total measured ppt with chamical samples:	56.8
Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	100.2

Total measured ppt, in mm: 1835.1

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	7.3	3.99	0.01	0.006	0.011	0.005	0.01	0.01	0.35	0.50	6.46E-04
10 percentile	.30	7.9	4.17	.02	.006	.013	.005	.03	.04	.37	.70	1.03E-02
25 percentile	6.50	10.8	4.25	.03	.012	.041	.008	.07	.08	.41	.87	1.51E-02
50 percentile	24.40	18.2	4.55	.08	.031	.107	.020	.19	.23	.97	1.47	2.82E-02
75 percentile	53.25	28.6	4.82	.19	.047	.218	.043	.29	.39	1.76	2.86	5.62E-02
90 percentile	86.40	47.9	5.00	.64	.139	.316	.120	.52	.68	2.10	4.88	6.79E-02
Maximum value	124.50	50.6	6.19	2.07	1.264	3.140	.407	.56	1.75	8.52	7.38	1.02E-01
Volume-weighted mean	NA	14.7	4.59	.05	.021	.114	.017	.15	.25	.65	1.32	2.55E-02
Arithmetic mean	34.62	21.9	4.60	.21	.089	.251	.046	.20	.31	1.32	2.17	3.54E-02
No. of samples	53	23	23	23	23	23	23	23	23	23	23	23
Total load, g/m^2	NA	NA	NA	0.054	0.022	0.119	0.018	0.152	0.263	0.678	1.379	2.7E-02
Maximum interval load, g/m^2	NA	NA	NA	.005	.005	.035	.003	.021	.075	.091	0.210	4.7E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.51	0.34	-.66	-.54	-.17	-.60	-.30	-.14	-.60	-.51	-0.34
P-level		.001	.023	.000	.000	.255	.000	.053	.341	.000	.001	.023



Percentage composition of major ions for site VA28.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

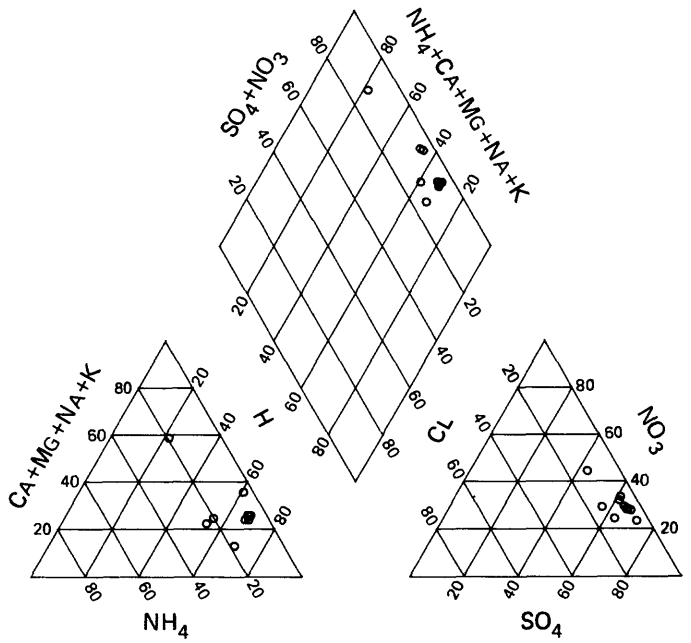
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Babcock State Park, West Virginia — Latitude: 37°58'47" Longitude: 80°56'59"
CAL number: WV04 — Map ID number: 105
ADS number: 379a00 — Station summary period: 09/06/1983 to 01/03/1984
Station altitude above mean sea level, in meters: 631 — Length of summary period: 17 sampling intervals (119 days)

Number of sampling intervals (days in parenthesis):			
-- With ppt measurements:	17	(119)	
-- When ppt occurred:	17	(119)	
-- When ppt did not occur:	0	(0)	
-- When sample volume was substituted for missing rain gage:	0	(0)	
-- With chemical samples:	10	(70)	

Percent summary period with ppt measurements:	32.1
Percent summary period with chemical samples or no ppt:	18.9
Percent of total measured ppt with chemical samples:	48.2
Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	87.4
Total measured ppt, in mm:	379.7

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	1.50	5.6	4.02	0.05	0.013	0.023	0.011	0.01	0.08	0.32	0.64	9.55E-03
10 percentile	1.74	6.3	4.03	.05	.013	.024	.013	.01	.08	.36	.70	1.07E-02
25 percentile	9.55	13.7	4.27	.09	.015	.031	.027	.04	.09	.74	1.27	2.36E-02
50 percentile	17.80	19.3	4.52	.12	.027	.073	.038	.12	.12	1.23	1.80	3.02E-02
75 percentile	32.15	35.7	4.63	.25	.056	.152	.066	.33	.34	2.23	3.94	5.59E-02
90 percentile	46.78	54.0	4.99	.79	.157	.626	.343	.54	.86	4.79	4.66	9.43E-02
Maximum value	82.30	55.4	5.02	.85	.165	.667	.367	.56	.87	4.97	4.68	9.55E-02
Volume-weighted mean	NA	17.3	4.53	.12	.027	.067	.036	.12	.13	1.03	1.70	2.95E-02
Arithmetic mean	22.34	24.4	4.48	.21	.046	.142	.075	.19	.26	1.67	2.42	4.03E-02
No. of samples	17	10	10	10	10	10	10	10	10	10	10	10
Total load, g/m^2	NA	NA	NA	0.021	0.005	0.012	0.007	0.022	0.024	0.188	0.311	5.4E-03
Maximum interval load, g/m^2	NA	NA	NA	.003	.001	.003	.001	.009	.004	.046	.065	1.1E-03
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.64	0.60	-.70	-.63	-.47	-.67	-.52	-.52	-.69	-.73	-0.60
P-level		.010	.016	.005	.012	.060	.007	.038	.038	.006	.003	.016



Percentage composition of major ions for site WV04.

NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

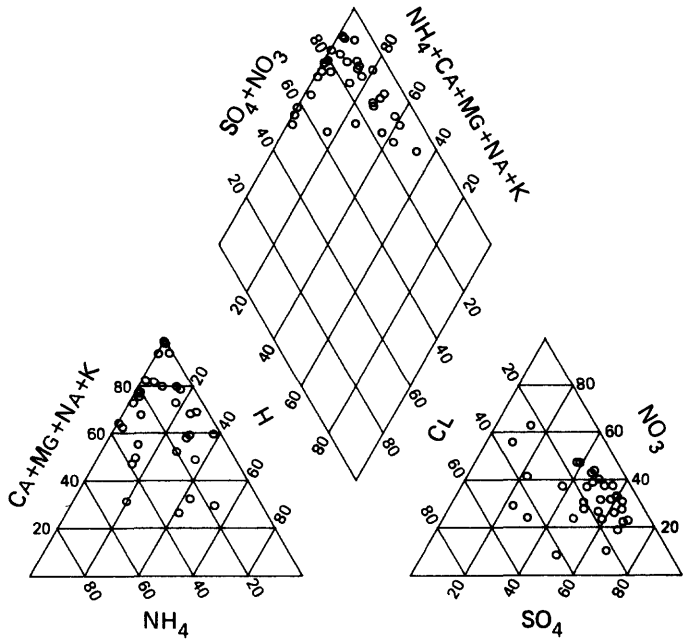
[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Pinedale, Wyoming — Latitude: 42°55'44" Longitude: 109°47'12"
CAL number: WY06 — Map ID number: 107
ADS number: 284a00 — Station summary period: 12/28/1982 to 01/03/1984
Station altitude above mean sea level, in meters: 2388 — Length of summary period: 53 sampling intervals (371 days)
Number of sampling intervals (days in parenthesis):

-- With ppt measurements:	53	(371)
-- When ppt occurred:	52	(364)
-- When ppt did not occur:	1	(7)
-- When sample volume was substituted for missing rain gage:	0	(0)
-- With chamical samples:	32	(224)

Percent summary period with ppt measurements:	100.0
Percent summary period with chemical samples or no ppt:	62.3
Percent of total measured ppt with chemical samples:	61.5
Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	72.2
Total measured ppt, in mm:	437.4

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate aa NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.2	4.00	0.04	0.011	0.021	0.004	0.01	0.04	0.12	0.05	1.66E-04
10 percentile	.30	2.8	4.83	.06	.016	.030	.005	.01	.06	.17	.14	4.81E-04
25 percentile	1.90	4.5	5.18	.10	.020	.039	.009	.02	.08	.34	.48	8.37E-04
50 percentile	6.10	6.3	5.75	.19	.044	.095	.023	.08	.12	.59	.76	1.78E-03
75 percentile	10.40	10.1	6.08	.40	.095	.396	.081	.21	.42	1.05	1.15	6.57E-03
90 percentile	22.48	24.0	6.32	.90	.256	.665	.157	.38	.70	1.48	2.17	1.48E-02
Maximum value	37.90	91.4	6.78	1.75	.317	15.697	.297	.91	3.28	3.37	5.22	1.00E-01
Volume-weighted mean	NA	6.8	5.26	.20	.045	.126	.030	.11	.14	.58	.73	5.46E-03
Arithmetic mean	8.25	12.0	5.64	.35	.081	.689	.057	.15	.32	.79	1.00	7.26E-03
No. of samples	53	32	32	32	32	32	32	32	32	32	32	32
Total load, g/m^2	NA	NA	NA	0.053	0.012	0.034	0.008	0.031	0.038	0.155	0.196	1.5E-03
Maximum interval load, g/m^2	NA	NA	NA	.006	.002	.004	.001	.007	.004	.019	.024	1.9E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.28	-0.30	-.41	-.52	-.52	-.40	.11	-.54	-.28	-.12	0.30
P-level		.025	.017	.001	.000	.000	.002	.403	.000	.024	.338	.017



Percentage composition of major ions for site WY06.

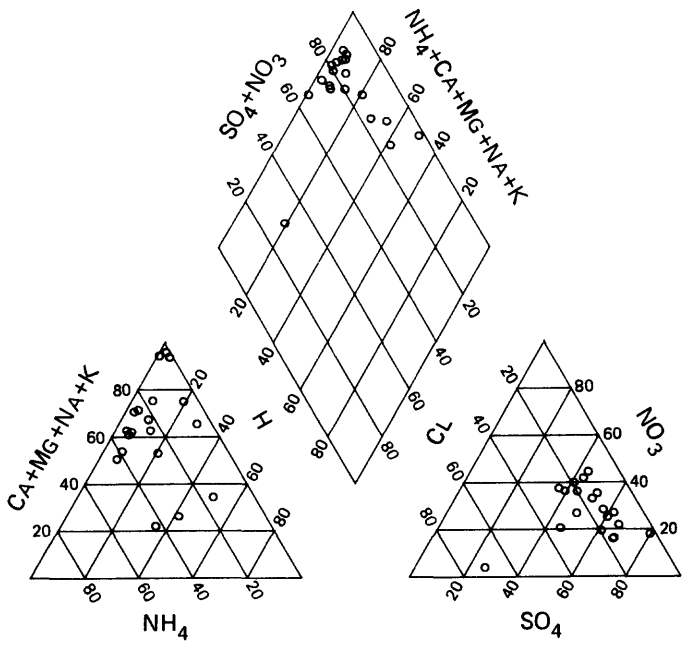
NATIONAL TRENDS NETWORK -- 1983 CALENDER YEAR SUMMARY DATA

[ppt = precipitation; mm = millimeters; cm = centimeters; mg = milligrams; L = liters; g = grams; m = meter; μs = microsiemens; cond = specific conductance]

STATION: Yellowstone National Park, Wyoming — Latitude: 44°55'02" Longitude: 110°25'13"
CAL number: WY08 — Map ID number: 108
ADS number: 078a00 — Station summary period: 12/28/1982 to 01/03/1984
Station altitude above mean sea level, in meters: 1912 — Length of summary period: 51 sampling intervals (371 days)

Number of sampling intervals (days in parenthesis):			Percent summary period with ppt measurements:	100.0
-- With ppt measurements:	51	(371)	Percent summary period with chemical samples or no ppt:	37.7
-- When ppt occurred:	50	(364)	Percent of total measured ppt with chemical samples:	38.0
-- When ppt did not occur:	1	(7)	Percent of total measured ppt in raingage that was collected in the wet-sample bucket:	105.0
-- When sample volume was substituted for missing rain gage:	6	(42)		
-- With chemical samples:	19	(133)	Total measured ppt, in mm:	347.5

Statistical measures	Measured ppt, mm	Lab specific conductance, μS/cm	Lab pH	Calcium as Ca, mg/L	Magnesium as Mg, mg/L	Sodium as Na, mg/L	Potassium as K, mg/L	Ammonia as NH_4, mg/L	Chloride as Cl, mg/L	Nitrite plus nitrate as NO_3, mg/L	Sulfate as SO_4, mg/L	Hydrogen ion as H, mg/L
Minimum value	0.00	2.5	5.03	0.02	0.004	0.020	0.007	0.01	0.01	0.01	0.05	4.57E-04
10 percentile	.30	2.6	5.26	.02	.012	.023	.009	.01	.06	.14	.26	7.08E-04
25 percentile	1.80	3.0	5.50	.06	.016	.050	.010	.03	.08	.15	.36	1.00E-03
50 percentile	5.10	4.7	5.69	.12	.036	.077	.023	.09	.11	.33	.48	2.04E-03
75 percentile	8.67	7.4	6.00	.26	.040	.125	.043	.13	.20	.55	.61	3.16E-03
90 percentile	16.90	9.1	6.15	.37	.077	.375	.066	.23	.31	.99	.93	5.50E-03
Maximum value	38.90	13.1	6.34	.48	.089	1.240	.070	.32	.32	1.12	1.75	9.33E-03
Volume-weighted mean	NA	4.7	5.45	.11	.022	.080	.024	.10	.11	.36	.49	3.56E-03
Arithmetic mean	6.95	5.3	5.71	.16	.035	.152	.028	.10	.14	.42	.56	2.62E-03
No. of samples	50	19	19	19	19	19	19	19	19	19	19	19
Total load, g/m^2	NA	NA	NA	0.014	0.003	0.011	0.003	0.013	.014	0.047	0.065	4.7E-04
Maximum interval load, g/m^2	NA	NA	NA	.003	.000	.003	.001	.003	.002	.010	.018	1.6E-04
Correlation with ppt volume:		Cond	pH	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	H
Kendall tau		-0.19	-0.29	-.33	-.54	-.53	-.01	.04	-.26	-.21	-.29	0.29
P-level		.261	.086	.054	.001	.002	.972	.833	.129	.206	.086	.086



Percentage composition of major ions for site WY08.

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