



# Project Summary

## Analysis of Acid Precipitation Samples Collected by State Agencies—Sampling Period January 1992–December 1992

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**This report presents analytical data from the 30 acid precipitation collection sites in the State-Operated Network that were operational in 1992. Samples are collected weekly in plastic bag liners and shipped in 500-mL polyethylene bottles to Global Geochemistry Corporation (the central laboratory for the network). This report contains maps showing the location of each site, plots of analytical data, tables of all field and analytical data, plots comparing field and laboratory pH and conductivity, and information on data quality. Samples are analyzed for pH, strong acid, conductivity, fluoride, chloride, nitrite, phosphate, bromide, nitrate, sulfate, ammonium, sodium, potassium, calcium, and magnesium. The central laboratory renders technical assistance to the collection sites on problems concerning pH and conductivity. Each of the ten participating state agencies receives analytical reports for the samples analyzed the previous month. Analyte concentration data are put on tape for later inclusion in the national acid deposition data base.**

*This Project Summary was developed by EPA's Atmospheric Research and Exposure Assessment Laboratory, Research Triangle Park, NC, to announce key findings of the research project that is fully documented in a separate report of the same title (see Project Report ordering information at back).*

### Introduction

The main report presents analytical data from the 30 acid precipitation collection sites in the State-Operated Network.

Samples are collected weekly in plastic bags inserted in the buckets and shipped in 500-mL polyethylene bottles to Global Geochemistry Corporation (the central laboratory for the network). Global Geochemistry analyzes the samples and monthly sends a report of the analytical results to each site. Global Geochemistry also summarizes these results on magnetic tape for inclusion in the national acid deposition data base. Individuals concerned with the collection and interpretation of acid precipitation sample results will find this report of interest.

### Overview of Network Operation and Sample Analysis

The central laboratory analyzes weekly acid precipitation samples for pH, strong acid, conductivity, fluoride, chloride, bromide, nitrate, nitrite, sulfate, phosphate, ammonium, sodium, potassium, calcium, and magnesium. Table 1 describes the methods used for these analytes.

The State-Operated Network collects weekly samples using a wet/dry bucket collector. Samples are collected in a plastic bag inserted in the bucket; an aliquot of the collected sample is sent to the central laboratory in a 500-mL polyethylene bottle at ambient temperature (except for one site, which ships samples in a cooler). The locations of the 30 network sites are shown in Figure 1.

The central laboratory provides the 30 network sites with plastic bucket lines, 500-mL sample bottles, field data sheets, pH and conductivity solutions, and other supplies incidental to collecting and shipping a collected rain sample. The central laboratory also provides technical assistance

**Table 1.** *Methods Used for Selected Analytes*

<i>Analyte</i>	<i>Analytical Method</i>	<i>Methodology</i>
<i>pH</i>	<i>EPA Method 150.1</i>	<i>pH Electrode</i>
<i>Conductivity</i>	<i>EPA Method 120.1</i>	<i>Conductivity</i>
<i>Acidity</i>	<i>Gran Titration</i>	<i>Titration</i>
<i>Cl, PO<sub>4</sub>, SO<sub>4</sub></i>	<i>EPA Method 300.0</i>	<i>Ion Chromatograph</i>
<i>NO<sub>3</sub>, F, Br, NO<sub>2</sub>, NH<sub>4</sub></i>	<i>EPA Method 350.1</i>	<i>Colorimetric</i>
<i>Na, K, Ca, Mg</i>	<i>EPA Methods 273.1, 258.1, 215.1, 242.1</i>	<i>Atomic absorption for Ca, Mg; flame emission for Na, K</i>

whenever it is requested by a field site. This assistance consists mostly of field pH and conductivity measurement procedures and equipment.

Monthly, the central laboratory sends a report to each state agency describing the analytical results for all samples analyzed from that agency's sites for the last month. The central laboratory also summarizes the analytical results for all 30 sites and sends this summary on magnetic tape to the organization that maintains the acid deposition data base for EPA.

### **Report Contents**

The report contains a table showing the latitude and longitude of each of the sites. It also contains plots of analytical data for each site during the time period, tables of all field and analytical data, a comparison of analyte concentrations at all sites (frequency of occurrence), precipitation weighted data for each site, plots comparing field and laboratory pH and conductivity, and quality control tables and plots.

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*The complete report, entitled "Analysis of Acid Precipitation Samples Collected by State Agencies—Sampling Period January 1992–December 1992," (Order No.*

*PB95-191342; Cost: \$36.50, subject to change) will be available only from:*

*National Technical Information Service*

*5285 Port Royal Road*

*Springfield, VA 22161*

*Telephone: 703-487-4650*

*The EPA Project Officer can be contacted at:*

*Atmospheric Research and Exposure Assessment Laboratory*

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