

Introduction

The many laboratories measuring precipitation parameters throughout the world attest to the perceived importance of this activity. Participating organizations range from major networks such as NAVAIR Development Plan, National Atmospheric Deposition Program (NADP), Canadian Network for Sampling Precipitation (CANSAP), Utility Acid Precipitation Study Program (UAPSP), and Multistate Atmospheric Power Production Pollution Study (MAP3S), which collect and process thousands of samples per year, to local college, university, and state laboratories, which may process 10 to 100 samples per year. Research scientists are conducting extensive, sophisticated, multisite studies of the composition of storm water using coulometric titration and mass spectrography while in Vermont, members of an extensive voluntary network of citizens are determining rainwater acidity using pH paper!

There is an immediate need to be able to compare this mass of data in order to answer urgent questions being posed by the regulatory and legislative communities. These intercomparisons are made more difficult because of the variety of different collection and analysis techniques in current use, as well as by a frequent lack of adequate quality assurance procedures. Quality assurance programs are being developed for all phases of precipitation collection, storage, and analysis, and the results of these programs are increasingly being reported along with the data. However, the development and adoption, where appropriate, of standard or comparable methods and analysis is still in the very early stages.

Voluntary standardization of some of the collection and measurement techniques would seem to have many advantages. Agreements among major networks to store precipitation samples and to conduct certain analyses using the same predetermined and tested procedures would radically improve data comparability. Furthermore, experience shows that such voluntary standard methods, when made publicly available, are rapidly adopted outside of the initiating organizations, thus improving the usefulness of the data collected by many other laboratories as well. In particular, newcomers to the field of deposition measurements can use existing standards for guidance.

Perceiving a need for standard methods for deposition measurement, ASTM Committee D-22 on Sampling and Analysis of Atmospheres is undertaking an activity to formulate appropriate standard methods and recom-

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mended practices for the collection and analysis of precipitation. As with all ASTM activities, the success of this program depends on the active participation of representatives from major precipitation monitoring networks and other interested and knowledgeable parties.

In preparation for these standardization activities, ASTM convened a one-day conference and workshop on Sampling and Analysis of Rain on 7 Oct. 1981 to assess the need for and interest in standards development. At the conference, invited authors described the processes leading to acidic precipitation, some techniques used to collect and analyze rain, and quality assurance programs currently used by major acid precipitation measurement networks. At lunch, and again after the presentations, attendees met in workshop format to discuss various quality assurance issues, including the desirability of standardization. A more detailed discussion of the workshop and its findings may be found in the concluding chapter of this volume.

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