

emission values, are tested for accuracy. As necessary, research is conducted to develop and improve forecasts of the meteorological parameters. When the forecasts of pollution concentration attain a sufficiently high degree of precision, they will become operational. Urban diffusion models are currently being adapted and validated for New York, N.Y.; St. Louis, Mo.; and Philadelphia, Pa. by a meteorologist located in each city. In addition, Laboratory of Engineering and Physical Sciences staff meteorologists are testing experimental forecasts of air pollutant concentrations for Cincinnati, Ohio.

2. Current procedures for issuing air pollution potential advisories: Daily air pollution potential forecasts are prepared by Laboratory of Engineering and Physical Sciences meteorologists in Cincinnati, Ohio. Forecasts are based on reports received hourly via teletype from Weather Bureau stations in the United States and on numerous analyses and forecasts provided via facsimile by the National Meteorological Center (NMC) in Suitland, Md. With its electronic computer facilities, the NMC prepares special mixing depth and wind speed data from all upper air observing stations in the United States (about 70 stations). NMC transmits these data to Cincinnati daily at 9:30 and 10:30 a.m., EST, for analysis, interpretation, and integration with other meteorological information. Air pollution potential forecasts based on these data are transmitted daily at 12:20 p.m., EST, to U.S. Weather Bureau stations (approximately 235 stations) via teletype service "C". When meteorological conditions do not warrant issuance of a high pollution potential advisory, the teletype message is "none today." When the forecast indicates that an advisory of high air pollution potential should be issued, the message designates the affected areas. The daily message indicates significant changes in the boundaries of advisory areas, including termination of episodes. To be notified of these advisories, interested persons must initiate arrangements with the nearest Weather Bureau station. Once arrangements have been made, the local Weather Bureau office will notify forecast users when their area of interest is included in an advisory.

3. Limitations to—

A. General weather forecasts: It should be noted that the ability to forecast the weather depends critically on the length of time for which the forecast is desired. Weather prediction for air pollution purposes for a matter of minutes to an hour in advance may be highly accurate, whereas forecasts many days in advance may be totally inaccurate. The size of the area for which forecasts are made is similarly crucial. Predictions for small areas on the order of city blocks presents serious difficulties, but an average forecast for a broad region of many square miles within a city can be made with some competence. The conversion of a prediction of conventional weather elements to an air quality forecast introduces an additional measure of uncertainty; a weather forecast can only provide the potential for pollution. The location of potential sources, the changes in their emission with time and the changes in pollution characteristics to photochemical and other reactions must also be known to predict the concentration of a contaminant.