



Project Summary

MPTER-DS: The MPTER Model Including Deposition and Sedimentation User's Guide

K. Shankar Rao and Lynne Satterfield

MPTER is the designation for a multiple point source air quality model with terrain adjustments. The diffusion algorithm is based upon Gaussian plume modeling assumptions. The MPTER model is available from the U.S. Environmental Protection Agency and can be used for estimating air pollutant concentrations from multiple sources in rural environments. The model has technical input options for terrain adjustment, stack downwash, gradual plume rise, and buoyancy-induced dispersion, and a great variety of output options. The MPTER model, therefore, may be considered a research tool for exploratory use of various assumptions and parameter values.

This report is a User's Guide to the MPTER-DS model which can explicitly account for dry deposition of gaseous and suspended particulate pollutants in the plume. The MPTER-DS model utilizes the Gaussian plume-type diffusion-deposition algorithms based on analytical solutions of a gradient-transfer model. These algorithms are easy to apply and, in the limit when pollutant settling and deposition velocities are zero, they reduce to the usual Gaussian plume diffusion algorithms in the MPTER model.

This report outlines the modifications of the MPTER computer program to include deposition. The information is oriented to the model user and the programmer. This report is not a complete User's Guide to the MPTER-DS model; it should be used as a supplement to the original User's Guide for MPTER.

This Project Summary was developed by EPA's Environmental Sciences Research 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).

K. Shankar Rao and Lynne Satterfield are with the National Oceanic and Atmospheric Administration, Oak Ridge, TN 37830.

Jack H. Shreffler is the EPA Project Officer (see below).

The complete report, entitled "MPTER-DS: The MPTER Model Including Deposition and Sedimentation—User's Guide," (Order No. PB 83-114 207; Cost: \$11.50, 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:

Environmental Sciences Research Laboratory

U.S. Environmental Protection Agency

Research Triangle Park, NC 27711

☆ U.S. GOVERNMENT PRINTING OFFICE: 1982—659-017/0865

United States
Environmental Protection
Agency

Center for Environmental Research
Information
Cincinnati OH 45268

Postage and
Fees Paid
Environmental
Protection
Agency
EPA 335



Official Business
Penalty for Private Use \$300

PS 0000329
U S ENVIR PROTECTION AGENCY
REGION 5 LIBRARY
230 S DEARBORN STREET
CHICAGO IL 60604