

PACKAGE ID - 000460IPCAT00 MAILS

KWIC TITLE - Multiple-Aircraft Instantaneous Line Source

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LIMITATION CODE -UNL **AUDIENCE CODE** - UNL

COMPLETION DATE - 03/01/1991 **PUBLICATION DATE** - 03/01/1991

DESCRIPTION - MAILS is an air-quality screening model, that provides conservative estimates of ground-level pollutant concentrations resulting from aircraft engine emissions along low-altitude (under 3000 ft) military training routes (MTRs). It was developed to evaluate the air-quality impacts of proposed MTRs, in accordance with the environmental-impact analysis requirements of the National Environmental Policy Act of 1969 (NEPA, Pub.L. 91-190).

PACKAGE CONTENTS - Software Abstract; Media Directory; ORNL/TM-11649;

SOURCE CODE INCLUDED? - No

MEDIA QUANTITY - 1 5.25 Diskette

METHOD OF SOLUTION - The dispersion algorithms used in MAILS are based on the commonly used Gaussian concentration distribution (Ref.3). The line-source emissions are assumed to disperse and maintain Gaussian distributions in the horizontal (Y axis, perpendicular to the line of release) and vertical directions. To obtain conservative concentration predictions, the wind direction is assumed to be parallel to the line of emissions release for 1 h. Concentration predictions for averaging periods longer than 1 h are based on the frequency of expected flights as input by the model user and on empirical averaging time adjustment factors to account for meteorological and flight-path variations throughout these longer periods.

COMPUTER - IBM PC/AT

OPERATING SYSTEMS - PC-DOS or MS-DOS

PROGRAMMING LANGUAGES - FORTRAN IV

SOFTWARE LIMITATIONS - Program requires a minimum of 360 kb of free memory.

SOURCE CODE AVAILABLE (Y/N) - N

UNIQUE FEATURES - Existing air-quality models were deemed inadequate for applications to the instantaneous line-source emissions

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UNIQUE FEATURES - (CONT) produced by intermittent aircraft flights along MTRs. Therefore, the MAILS model was created for this unique type of pollutant source. The model was integrated with an aircraft-engine-emissions database to produce an interactive, user-friendly modeling system. The MAILS model can be run quickly and requires minimal user training to execute and to interpret or apply results. The model is recommended as a planning tool for proposed or existing low-altitude military airspaces.

RELATED SOFTWARE - MAILS is an outgrowth of the Single-Aircraft Instantaneous Line Source (SAILS) dispersion model. The SAILS model was modified by integrating an aircraft emissions database and adding the capability for multiple-aircraft assessment in a single model run. The modified model is named MAILS.

HARDWARE REQS - IBM compatible PC-AT or an upwardly compatible personal computer (PC) such as 80386-based machines with PC-DOS or MS-DOS Version 3.0 or later operating system.

TIME REQUIREMENTS - The model runs in less than 1 minute.

REFERENCES - E.J. Liebsch, Multiple-Aircraft Instantaneous Line Source (MAILS) Dispersion Model User's Guide, ORNL/TM-11649, March 1991.

ABSTRACT STATUS - Submitted August 1992.

SUBJECT CLASS CODE - R

KEYWORDS -

COMPUTER PROGRAM DOCUMENTATION
M CODES
AIR POLLUTION
AIR QUALITY
AIR TRANSPORT
DIFFUSION
ENVIRONMENTAL EFFECTS
NITROGEN OXIDES
PARTICULATES
AIRCRAFT

EDB SUBJECT CATEGORIES -
990200 540120

SPONSOR - DOE/ER;DOD

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