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GRIDDED MODEL INFORMATION SUPPORT SYSTEM (GMISS) USER'S GUIDE

Volume III: Model Concentration Data Retrieval Subsystem

Gridded Model Information Support System (GMISS)

User's Guide

Volume III:

Model Concentration Data Retrieval Subsystem

Prepared For

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Notice

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Preface

The Gridded Model Information Support System (GMISS) is a database management system for selected Regional Oxidant Model (ROM) input data and species concentrations produced by gridded photochemical air pollution models. The Model Concentration Data Retrieval Subsystem allows State and local air pollution control agencies to retrieve these hourly data for use in support of their regulatory programs. These hourly data may be used to calculate initial and boundary conditions for the Empirical Kinetics Modeling Approach (EKMA). They may be used for other modeling application needs as well as to support evaluation of regional emission controls strategies.

This volume of the GMISS User's Guide describes the procedures required to retrieve a subset of ROM data using the Model Concentration Data Retrieval Subsystem with fullscreen menus. Both temporal (via start and stop times) and spatial (via latitude and longitude) subsets of the data may be retrieved. The subsystem performs two functions: produce a report of concentration data available for retrieval, and retrieve concentration data.

Other volumes of the GMISS User's Guide describe data base management utilities for loading, quality assuring, and maintaining the ROM database on EPA's IBM computer system at Research Triangle Park, North Carolina. These parts of the GMISS are currently under development and testing.

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1. INTRODUCTION

This manual describes the procedures for retrieving air pollution simulation model predicted concentration data from GMISS. This chapter summarizes the purpose and features of the GMISS Model Concentration Data Retrieval Subsystem and outlines the organization of the rest of the document.

1.1 Background

GMISS, the Gridded Model Information Support System, is a computer-based repository of data produced and used by selected grid-based air pollution models. The U.S. Environmental Protection Agency (EPA) commissioned the development of GMISS in 1988, and the first implementation was completed in 1989. Its purpose is to provide a means for States and EPA to readily access model input and output databases for analysis and interpretation (e.g., evaluating strategies and assessing model performance). Although GMISS is conceptually designed to handle gridded results of any air pollution model, all the data stored so far are from simulations using the Regional Oxidant Model (ROM). This user's guide describes the function of the Model Concentration Data Retrieval Subsystem and explains how to use it to obtain concentration data.

1.2 Concentration Data Retrieval Subsystem

Any individuals who have access to the IBM computer system at the EPA National Computer Center can retrieve concentration data, the hourly concentrations of air pollutants and related chemical species, computed by models such as the ROM. This is a continuing process; as additional ROM runs are made, the new data are released through GMISS following review and approval.

To use the Model Concentration Data Retrieval Subsystem, specify which of the available ROM data to retrieve by entering choices on a series of menu screens. The menus describe what information is needed. Some menus display a list of values to choose from, and some have spaces on the screen for entering values. All the menus check the entries and notify you if a choice is incorrect or inconsistent. You can use the

Subsystem successfully without having extensive knowledge of either the IBM computer system or the ROM. It creates one or more disk files containing the data requested, and a summary on the log output details the data selection criteria and the computer processing done.

1.3 Organization of This Manual

The following chapters of this manual provide the information required to use the Model Concentration Data Retrieval Subsystem and the data files it creates.

- Chapter 2 describes subsystem features and characteristics.
- Chapter 3 tells what equipment is needed and how to start and use the system.
- Chapter 4 is a tutorial that illustrates typical data retrieval procedures.
- Chapter 5 describes each menu screen and explains how to use it.
- Chapter 6 shows the format of the data files created.

1.4 For More Information

This manual provides complete instructions for using the Model Concentration Data Retrieval Subsystem of GMISS, but it does not attempt to cover other topics. If this manual does not provide required information, contact the sources listed below.

For information about using the IBM computer system at the EPA National Computer Center, or for help with IBM computer-related problems, contact the user support department. Specialists are on duty weekdays 8:00 a.m. through 7:00 p.m. eastern time to help solve problems and to answer questions. The user support department mailing address and telephone numbers are:

User Support Department, MD-34
EPA National Computer Center
U.S. Environmental Protection Agency
Research Triangle Park, North Carolina 27711
Telephone:(FTS) 629-7862 or (919) 541-7862 or (800) 334-2405

For any other information not directly related to using the IBM computer system, get in touch with the meteorology/modeling contact for your EPA Region. Contact that person for questions about registering to use EPA's IBM computer system or using the Model Concentration Data Retrieval software.

2. OVERVIEW

The Model Concentration Data Retrieval Subsystem lets you access the GMISS database to retrieve regional scale air pollution model data. This chapter discusses the criteria you can use to select data for retrieval and the mechanics of the data retrieval process.

2.1 An Introduction to GMISS

The Gridded Model Information Support System (GMISS) is a database of information associated with selected grid-based air pollution models, and computer software for maintaining and accessing that information. Figure 2-1 illustrates the main components of GMISS. The central, principal component is the database. There are two data-handling components, Model Concentration Data Subsystem and UAM Subsystem, and two data-handling functions, load and retrieve. The dashed-line boxes in Figure 2-1 indicate the scope of the data-handling subsystems, and the shaded boxes indicate the data-handling function. The shaded arrows in each subsystem signify the flow of data into and out of the database by the data loading and retrieving functions. The arrow with darker shading represents the Model Concentration Data Retrieval Subsystem function described by this manual. As Figure 2-1 indicates, GMISS now loads only ROM concentration data, although in the future it may also include concentration data from other models, such as the Regional Acid Deposition Model (RADM) and the Urban Airshed Model (UAM).

In Figure 2-1, the symbols for input and output files are only partly within the scope of the data subsystems. This indicates that GMISS does not control the creation of the incoming model data or the use of retrieved data. GMISS retrieval files are designed and intended for certain uses, as Figure 2-1 indicates, but the file owners--GMISS users--ultimately determine how the retrieved data are used. The unshaded arrows in the *Use* area of Figure 2-1 emphasize that GMISS is not directly involved with the use of retrieved data.

Gridded Model Information Support System (GMISS)

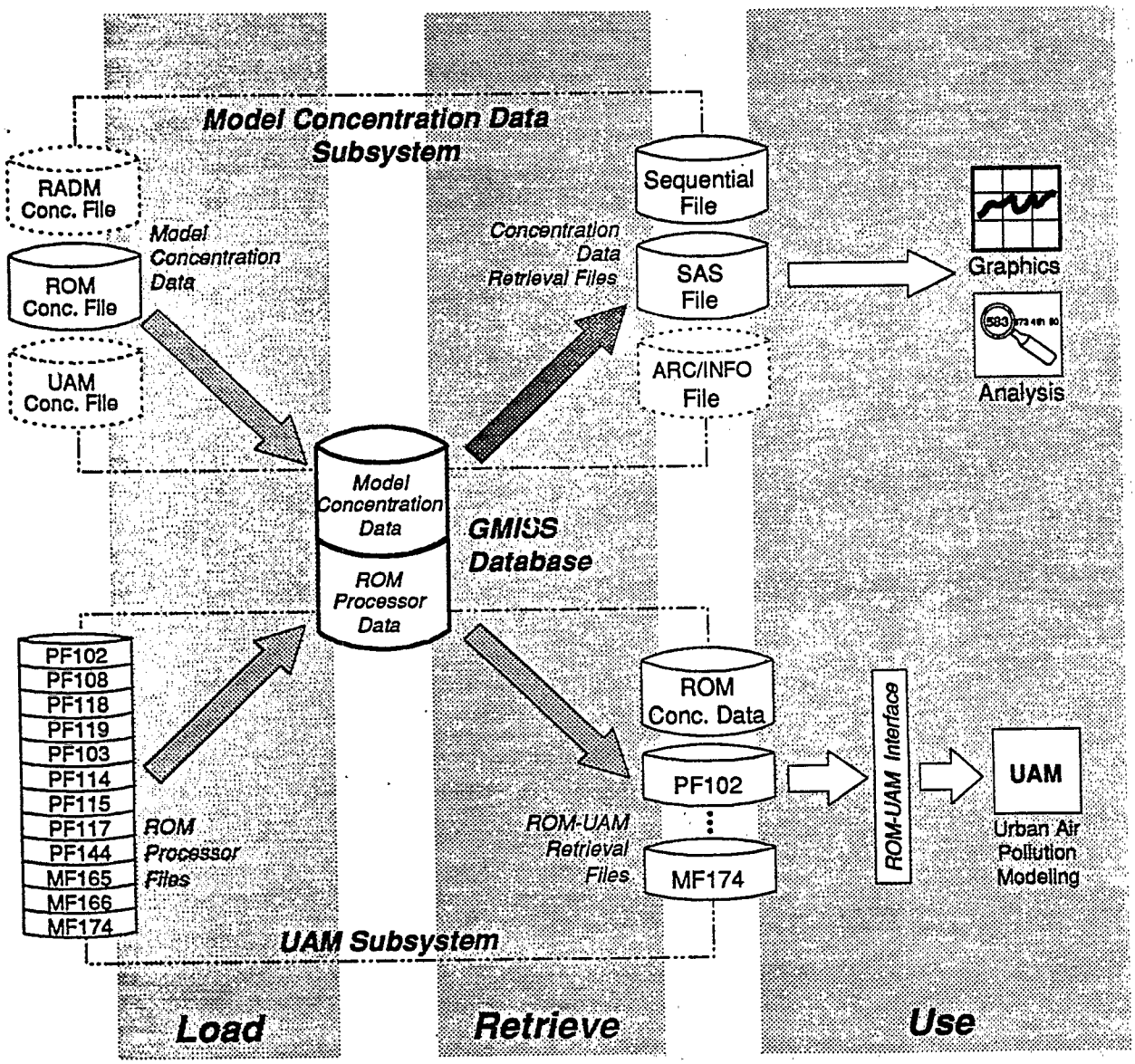

Figure 2-1. Overview of GMISS

The Model Concentration Data Subsystem deals primarily with the model predictions (computed atmospheric concentrations of pollutants, precursors, and related chemical species). This subsystem gives EPA access to the vast amounts of data produced by model simulations, for use in data visualization, comparison, and analysis. The *load* function stores hourly concentration values in the GMISS database, and the *retrieve* function extracts selected hourly data and creates either sequential or SAS-format retrieval files.

Figure 2-2 illustrates the components of the Model Concentration Data Retrieval Subsystem. There are two functions: producing a report of concentration data available for retrieval, and retrieving concentration data. Either function is initiated when a user selects it from the GMISS main menu. The user enters information on subsequent menu screens to define the scope and options for the function. Then the actions necessary to carry out the data reporting or data retrieval function execute, either as a separate batch job or during the interactive terminal session. The product of the reporting function is a printed report, and the product of the retrieval function is a data file.

The rest of this chapter explains more about the criteria for specifying which ROM data to retrieve from GMISS and how the data retrieval takes place.

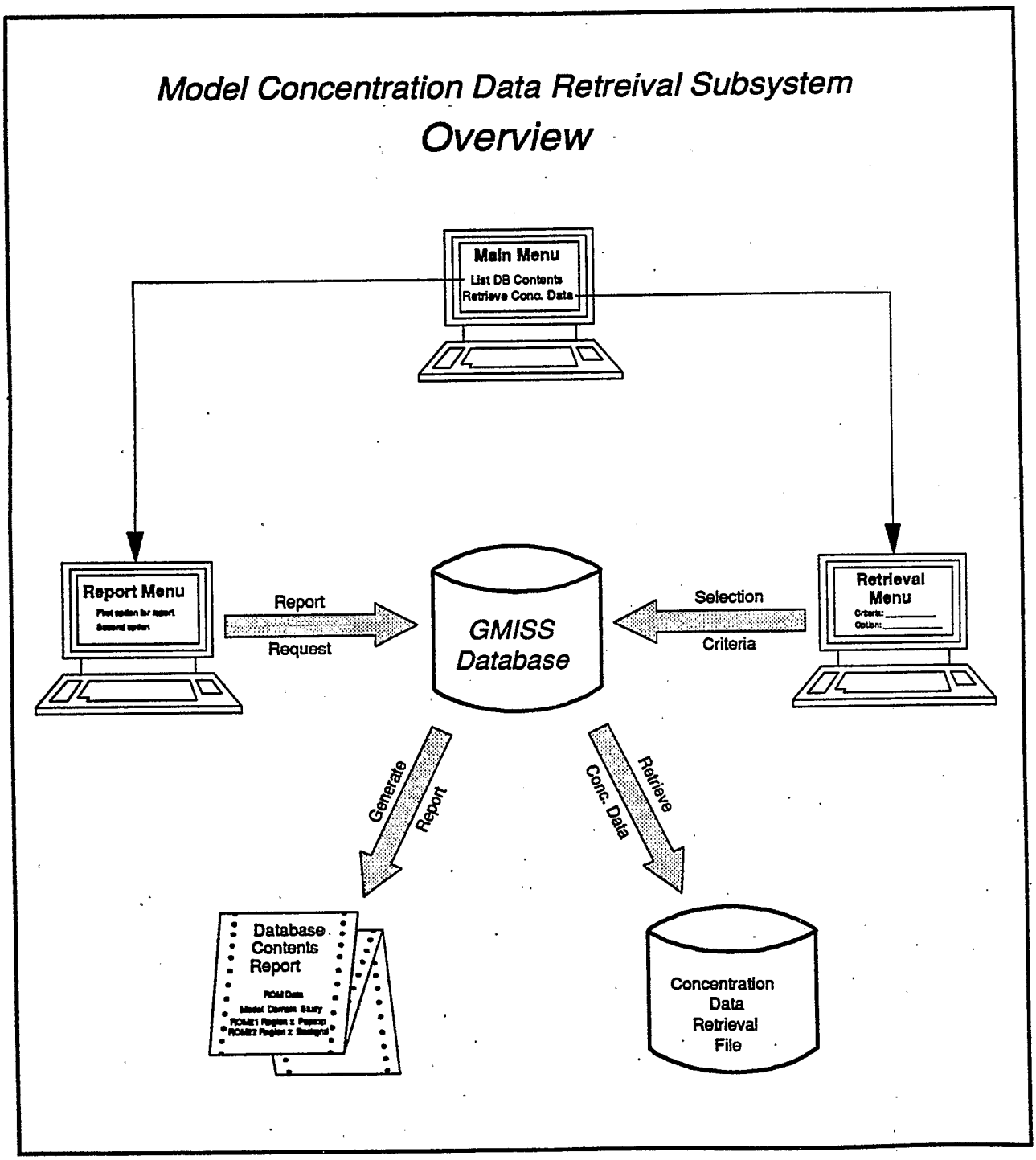

Figure 2-2. Overview of the Model Concentration Data Retrieval Subsystem

2.2 Selection Criteria

The results computed by air pollution models such as the ROM are called "concentration data". These data give the concentrations of pollutants and related chemical species in the atmosphere at hourly intervals throughout the time period simulated by the model, which is usually about two weeks for the ROM. The geographic area of the simulation, the model domain, is a rectangular grid. The grid lines define the boundaries of imaginary "cubes" of air stacked in several vertical layers. The model computes the concentrations of chemical species in every cell, or "cube", of this three-dimensional array. Thus, a single concentration datum is the concentration of a particular chemical species, in a particular three-dimensional cell, at a particular date and time in a particular simulation. That particular cell is identified by row and column numbers in the domain grid, and by vertical layer[1] number. The cell at the southwest corner of the ROM domain is for row 1, column 1. Row numbers increase to the north, and column numbers increase to the east. Layer 1 is at the surface, and each higher layer has a higher number.

Each ROM simulation of air pollution is based on a set of conditions called a *scenario*. The two main components of a scenario are meteorological conditions and emissions from natural (biogenic) and man-made (anthropogenic) sources. ROM simulations show the effects of various hypotheses regarding emissions, using meteorological data recorded during the time period being simulated. The complete description of a scenario identifies the emissions hypotheses and the meteorological episode used in the simulation.

The GMISS database contains data for many ROM scenarios. You can get descriptions of these scenarios in the form of a printed report or as "help" information on a Model Concentration Data Subsystem menu screen. Knowing the scenario conditions is important because scenario name is the primary criterion for selecting which data to retrieve from GMISS. To create a retrieval file, the Subsystem extracts ROM concentration data associated with the particular scenario that you select.

[1] Sometimes "level" is used instead of "layer"; the terms are synonymous.

In addition to scenario, there are three other related selection criteria that you need to specify to retrieve data for a particular ROM simulation: study, domain, and model. Scenarios are grouped into studies. A *study* is a series of simulations intended to demonstrate some effect, answer some general question, or meet some EPA program objective. The definition of a study is flexible. Because the same scenario name can be used in different studies, you need to specify a study name to identify a specific simulation. *Domain* is the geographic area covered by a ROM simulation. *Model* is the acronym of the version of the ROM used to perform a simulation. As with study, the same scenario name may be used for separate simulations that pertain to different domains or ROM versions. To retrieve data for a particular ROM simulation, therefore, you must qualify the scenario name with the names of the appropriate study, domain, and model.

Once you have chosen a ROM simulation, you must define what part of the simulation to retrieve. This involves selection criteria for date range, subdomain, layers and species.

ROM simulations usually have a duration of 15 days, although a few last 12 or 9 days. One day is the shortest time period for which you can retrieve data, and the duration of the scenario is the longest time period. The Model Concentration Data Subsystem ensures that data are available for at least one day in the date range you select. There could be multiple simulations in your date range, so retrieval files may not always contain data for consecutive days.

Subdomain is a rectangular area that encloses the geographic area to be simulated by ROM. The subdomain is composed of whole ROM grid cells, so its boundaries lie on some of the imaginary lines that divide the ROM domain into cells, and the longitude-latitude or row-column coordinate system specifies its location. You specify the size and location of the subdomain when you retrieve the data by indicating the longitude and latitude or row and column coordinates of two opposite corners of a rectangle.

Model concentration data are hourly averages of the atmospheric concentrations of about 35 chemical species, mostly pollutants and their precursors, computed during a ROM simulation. For each version of ROM, a list of valid species is maintained in GMISS.

The ROM also divides the atmosphere vertically into three layers, which have "thicknesses" that range from about 100 meters to a few thousand meters. Both species and layers are used to define part of a simulation to retrieve.

2.3 Retrieval Options

Model Concentration Data Retrieval occurs in two stages. The first stage is an interactive computer terminal session, in which you use menus to specify selection criteria for the data to retrieve. The second stage is either an interactive or batch job that extracts the requested data from GMISS and creates the retrieval file based on your selections. If the user elects to run the retrieval interactively, the system will halt with a message stating "Please Wait" until the data retrieval is complete. If batch mode is selected, the menu program submits the batch job after you have supplied the necessary information, and usually the job begins executing soon thereafter. It may be delayed if many other batch jobs are running (or waiting to run), or if your job control specifications force it into a low-priority category. *Menu Reference*, Chapter 5, describes the items that affect batch job priority. Since the batch job creates the retrieval files, you cannot access them until the batch job is done.

Another option available is the retrieval file format. It can be either a SAS data library or an IBM partitioned dataset that resides on disk storage of the NCC-IBM computer system. Every concentration data retrieval file has two members (DATA and INFO) regardless of their format. Chapter 6, *Output*, contains a description of the retrieval file and its members.

3. PROCEDURES

The Model Concentration Data Retrieval Subsystem runs on the IBM computer system at EPA's National Computer Center. This chapter explains what authorization and equipment you need to use the subsystem, how to use the menus, and how to start the subsystem.

3.1 Authorization

Only registered users of the IBM computer system at the EPA National Computer Center may retrieve model concentration data. You need access only to standard facilities of the IBM computer system: the ability to use TSO and to submit batch jobs. TSO, or Time Sharing Option, is the interactive part of the IBM computer operating system; it is the environment in which the subsystem menus operate. Batch jobs, submitted by the menus, execute under control of the MVS operating system. Job Control Language (JCL) statements created by the menus define the tasks performed and the resources used by the batch job.

If you are not a registered user of EPA's IBM computer system, get information about registration procedures from the modeling contact for your EPA Region.

3.2 Equipment

The Model Concentration Data Subsystem uses *full-screen* menus. This means the computer system and the terminal exchange data in screen-sized segments, rather than a line at a time or character by character. You must use a terminal that supports this full-screen protocol, or use equipment that emulates such a terminal.

Full-screen IBM terminals have model numbers such as 3270, 3278, 3472, and 3179. Other manufacturers market functionally equivalent terminals. These terminals display 80 characters per line and 24 or 32 lines per screen. Some terminals have color display, but monochrome displays are more common. The Model Concentration Data Subsystem menus work on either terminal type.

If you do not have a full-screen terminal, you can emulate one using an *asynchronous* terminal or its equivalent, such as a personal computer equipped with a modem and appropriate communications software. The EPA National Computer Center has a *protocol converter*, equipment that converts the character-by-character communications protocol of an asynchronous terminal to the full-screen protocol required for the menus. For a PC/modem emulation to work acceptably, the PC communications software must provide a way to make some keys on the PC keyboard equivalent to the *program function (PF) keys* on full-screen terminals. You will not be able to use Model Concentration Data Retrieval Subsystem menus if your terminal cannot emulate PF keys.

If you need more information about terminals or terminal emulations, get in touch with the modeling contact for your EPA Region or with the user support department of the EPA National Computer Center.

3.3 Getting Started

GMISS and its Model Concentration Data Retrieval Subsystem run in the TSO environment on the IBM computer system of EPA's National Computer Center. Before you can use the subsystem, you need to *log on* to TSO in *full-screen* mode. If you need help doing this, read the "Getting Started" chapter of the *Guide to NCC Services*. The *Guide* is distributed to new users of the National Computer Center when they register, and current users can request a copy from the user support department. Unfortunately, the *Guide to NCC Services* is not very clear about the procedure for connecting to the IBM computer system in the full-screen emulation mode if you are using an asynchronous terminal or a personal computer and a modem. If you need help, get in touch with the modeling contact for your EPA Region, or call the user support department of the EPA National Computer Center.

When you have completed the log-on and TSO has displayed its "READY" prompt, you are ready to invoke the Gridded Model Information Support System. Type the following command exactly as shown (you can use either lower case or upper case):

EX 'GAME.GMISS.CLIST(GMISS)'

Press the ENTER key to transmit the command to the computer and start GMISS. There will be a short pause while the software is loaded and initialized. During that process, the SAS screen shown in Figure 3-1 may appear briefly. When the main menu emerges (Figure 3-2), GMISS is active. Figure 3-3 is an example of the type of screen that can be seen throughout the system.

You will find instructions for using GMISS menus later in this manual. The next section of this chapter describes the general procedures for using Model Concentration Data Retrieval Subsystem menus. Chapter 4, *Tutorial*, uses an example to illustrate those procedures and the menus you might use for a typical data retrieval request. Chapter 5, *Menu Reference*, describes the sequence of menus and explains the details of each one.

```
+LOG-------------------------------------------------------------------------+
| Command ===>                                                              |
|                                                                           |
|                                                                           |
|  Welcome to the new SAS System, Release 6.06.                             |
|                                                                           |
|  Changes and enhancements available in SAS Release 6.06 are documented    |
|  in the "SAS Companion for the MVS Environment."                          |
|                                                                           |
|                                                                           |
+---------------------------------------------------------------------------+

+PROGRAM EDITOR--------------------------------------------------------------+
| Command ===>                                                              |
|                                                                           |
| 00001                                                                     |
| 00002                                                                     |
| 00003                                                                     |
| 00004                                                                     |
| 00005                                                                     |
| 00006                                                                     |
| 00007                                                                     |
+---------------------------------------------------------------------------+
```

Figure 3-1. SAS Screen That Appears Briefly During GMISS Startup

```
+----------------------------------------------------------------------------+
|                                                                            |
|          Gridded Model Information Support System (GMISS)                  |
|                           Main Menu                                        |
|                                                                            |
|                                                                            |
|            What do you want to do? _                                       |
|                                                                            |
|            1 - List Database Contents                                      |
|            2 - Retrieve Data for Urban Airshed Model (UAM)                 |
|            3 - Retrieve Model Concentration Data                           |
|            4 - Generate Graphics                                           |
|                                                                            |
|                                                                            |
|                                                                            |
|                                                                            |
|                                                                            |
|                                                                            |
|                                                                            |
|                 (Press PF3/PF15 to exit from GMISS.)                       |
|                                                                            |
+----------------------------------------------------------------------------+
```

Figure 3-2. GMISS Main Menu

```
+3.3-------------------------------------------------------------------------+
|              GMISS: Retrieve Data For Concentration Data                   |
|                      Select From Available Data                            |
|                          Domain: ROMNET1                                   |
|                                                                            |
| Available data matching your initial selection criteria are listed below.  |
| Type "S" beside each entry(s) you want to retrieve; change the date range  |
| if you wish.  Press ENTER to accept the selected entry(s) and continue.    |
|                                                                            |
| (PF8/PF20=scroll forward,  PF7/PF19=scroll backward,  PF3/PF15=prev. menu) |
|                 Select at least one entry in the list.                     |
|  SELECT   Dates Available         Scenario     Study        Model          |
|                                                                            |
|     _    06/08/83 - 06/20/83     BASE05       ROMNET       ROM21          |
|     _    07/02/88 - 07/17/88     BASE05       ROMNET       ROM21          |
|     _    07/02/88 - 07/17/88     BASE85       ROMNET       ROM21          |
|     _    07/07/85 - 07/22/85     BASE85A      ROMNET       ROM21          |
|     _    08/07/85 - 08/16/85     BASE85A      ROMNET       ROM21          |
|     _    07/02/88 - 07/17/88     CS01         ROMNET       ROM21          |
|     _    07/02/88 - 07/17/88     CS02         ROMNET       ROM21          |
|     _    07/02/88 - 07/17/88     CS03         ROMNET       ROM21          |
+----------------------------------------------------------------------------+
```

Figure 3-3. Sample Model Concentration Data Retrieval Subsystem Menu

3.4 Using Menus

The Model Concentration Data Retrieval Subsystem menus make it easy for you to retrieve data from GMISS. The procedure is simple:

1. A menu appears on your terminal screen and prompts you for certain information.
2. You supply the requested information and press the ENTER key. This is the basic operating procedure; pressing the ENTER key tells the menu program, "I'm done here. Go on to the next operation." You can alter the basic procedure using program function (PF) keys, as explained later in this section.
3. The menu program checks the information for errors or inconsistencies and reports any problems it finds. You fix the problems, press ENTER, and the next menu appears.
4. Steps 1 through 3 are repeated for each menu needed to define your retrieval. When all the specifications are assembled, the last menu program submits a batch job to perform the retrieval.

This section explains common features of the Model Concentration Data Subsystem menus and general procedures for using them. Figure 3-3 is a menu that illustrates many of the features. The following paragraphs describe the features and how to use them.

Identification

Every menu has a number in the top left corner that uniquely identifies it, and two title lines at the top of the screen summarize the menu's purpose or function. In Figure 3-3, the identifying number is 3.3. The first title line identifies the general function (data retrieval) and the second line states the specific purpose(choose which of the available data you want to retrieve).

Instructions

The lines of text below the menu title explain what you are expected to do. The specific instructions vary from one menu to another, but there are two general types of actions: select from a list and fill in a blank. In Figure 3-3, the four lines of instructions describe both types of action.

PF Keys

Below the instructions in Figure 3-3 is one line that indicates the functions assigned to PF keys; on some menus, this information is located at the bottom of the screen. Table 3-1 lists the standard PF key function. The *cancel* function, PF3 or PF15, is available on every menu. It lets you return to a previous menu or exit form the subsystem without retrieving data. The *abort* function, PF4 or PF16, is available on every menu except the main menu. It is a quick way to abandon a data retrieval request and return to the GMISS main menu, but your menu choices are not saved (see below), and some warning messages may occur when you end a GMISS terminal session in which you use *abort*. The scrolling functions listed in Table 3-1 are meaningful only on menus that display an item list that does not all fit on one screen. On other menus the PF keys for scrolling have the same effect as the ENTER key.

Table 3-1. PF Key Functions for GMISS Menus

PF Key	Assigned Function
PF3 or PF15	**CANCEL** - Terminate the current menu without taking any action and return to the previous menu. Used at the GMISS main menu, this function means to exit from GMISS.
PF4 or PF16	**ABORT** - Terminate the current menu without taking any action and return to the GMISS main menu.
PF7 or PF19	**BACKWARD** - Scroll toward the beginning of a list of items.
PF8 or PF20	**FORWARD** - Scroll toward the end of a list of items.
PF10 or PF22	**TOP** - Scroll to the beginning of a list of items. This is equivalent to using PF7 or PF19 repeatedly.
PF11 or PF23	**BOTTOM** - Scroll to the end of a list of items. This is equivalent to using PF8 or PF20 repeatedly.

Error Messages

All Model Concentration Data Retrieval Subsystem menus have a message area that is used to notify you when something is wrong. If you never make a mistake when using the menus, the message area will always be a blank line. Generally, it is located just below the instructions and list of PF keys. When a menu program detects something wrong, it describes the problem in a one-line message that appears after you press the ENTER key of your terminal. The message is highlighted (red on color terminals) to make it stand out. In Figure 3-3, the message "Select at least one entry in the list" appeared because no lines had been selected when the ENTER key was pressed.

Error Correction

Fill-in-the-blank fields associated with an error are highlighted (red on color terminals). If there are multiple errors, the error message describes only the first one, but the fields involved with all errors are highlighted to alert you that additional errors exist. The cursor is positioned at the first field involved with an error. you should change that field to eliminate the error. If you can determine what is wrong with the other fields, just correct the field to which the error message applies and press the ENTER key. An error message applicable to the next highlighted field will then appear, and you can correct it. In some instances an error condition involves two or more fields, and you may need to decide which of them is the real "culprit", the one causing the error.

Selection and Specification Fields

The middle or bottom of a menu displays a list of values for you to choose from or has spaces (fields) for you to enter values. The menu in Figure 3-3 has both. The fields under the heading "SELECT" are for choosing which line (scenario) to retrieve. The fields under the heading "Dates Available" will accept values you enter to replace their initial values. Both selection fields and specification fields may have initial values. Pressing the terminal's TAB key moves the cursor from one selection or specification field to the next. If your terminal has a reverse-tab or back-tab key, pressing it moves the cursor to the previous selection or specification field. You can also use the terminal's cursor-movement keys to move the cursor to a field, but using the TAB key is quicker.

Protected Fields

Sections of the screen skipped over when you press TAB are *protected*; you cannot alter them. If you move the cursor with cursor-movement keys to a protected part of the screen and try to alter it, the terminal keyboard locks and you must press the RESET key to regain use of it. menu title, instructions, "white space", and so on are protected areas. Sometimes an area of a menu that looks like a fill-in-the-blank field with an initial value is instead a protected field. This happens when the menu program determines that only one value is valid for the field, "fills in" that value for you, and makes the field protected. If you can tab the cursor to a field, it has an initial value that can be changed. If you cannot tab to it, the field is protected.

Scrolling

Some menus have a list of items to choose from. In Figure 3-3, each item is one line, but some menus have multiline items. If the entire list does not fit on the screen, you *scroll* to see more items. Imagine that part of the menu is a window through which you see the list of items. Scrolling forward is like sliding the window down, toward the end of the list. Scrolling backward is like sliding the window up, toward the beginning of the list. The window scrolls by the number of lines visible, until it reaches the end or beginning of the list. The window scrolls by the number of lines visible, until it reaches the end or beginning of the list. Scrolling backward when the beginning of a list is displayed has no effect, nor does scrolling forward at the end of a list; "end of file" or "at bottom" or "at top" may appear in the message area, however.

Field Values Saved and Recalled

The first time you use a menu, the fields in which you can enter values are blank or they have default values chosen by the menu program, such as the dates in Figure 3-3. Underlines indicate the locations and sizes of blank fields. When you leave a particular menu, the Model Concentration Data Retrieval Subsystem saves the values of all fill-in-the-blank fields. The next time you use the same menu, the values you entered (or the defaults you accepted) are displayed as the initial values. If you want to use the same values again, you do not have to re-enter them.

4. TUTORIAL

This chapter illustrates a typical data retrieval session. It show how the menus will look when you use the Model Concentration Data Retrieval subsystem, and how they respond to common mistakes. You can run this example on your own terminal, if you wish, by entering the values and commands given in the text.

4.1 Starting GMISS

Suppose you want to extract a subset of the hourly concentration data out of the GMISS database for graphics or analysis. Having completed the log-on to EPA's IBM computer system, you are ready to begin data retrieval. Follow the instructions for invoking GMISS, given in the *Getting Started* section of Chapter 3, and type EX 'game.gmiss.clist(gmiss)' after the TSO *READY* prompt. Your terminal screen at this point looks like Figure 4-1.

```
+------------------------------------------------------------------------+
|                                                                        |
| 91/10/08: COLUMBUS DAY HOLIDAY SCHEDULE              - SEE NEWS ALERT11 |
| 91/10/07: QUICKREF RELEASE 3.0 AVAILABLE FOR TESTING - SEE NEWS ALERT5  |
| 91/10/07: IBM INFORMATION MANAGEMENT ADDED TO MENU   - SEE NEWS ALERT8  |
| 91/10/04: A LIST OF RECENTLY RELEASED EPA MEMOS      - SEE NEWS ALERT3  |
| 91/10/04: ADABAS V5.1.8 INSTALLATION POSTPONED       - SEE NEWS ALERT10 |
| 91/10/01: PHOENIX COURSES UNAVAILABLE                - SEE NEWS ALERT1  |
| 91/09/30: HSM EXPLICIT ARCHIVE TO ASM2 (UPDATE)      - SEE NEWS ALERT2  |
| 91/09/25: PLSORT RELEASE 6.3E AVAILABLE FOR TESTING  - SEE NEWS ALERT6  |
| 91/09/25: INSTALLATION OF RACF VERSION 1.9           - SEE NEWS ALERT7  |
| 91/09/17: FOCUS DATA DICTIONARY RELEASE 3.0.2        - SEE NEWS ALERT4  |
|READY                                                                   |
|ex 'game.gmiss.clist(gmiss)'                                            |
|                                                                        |
|                                                                        |
|                                                                        |
+------------------------------------------------------------------------+
```

Figure 4-1. Invoking GMISS From TSO

Shortly after you press the ENTER key, the GMISS main menu appears. As you can see in Figure 4-2, the main menu has four options. You should use option 1 to get a printed report listing the names, dates and descriptions of the values available in GMISS before you begin using option 3 to retrieve data. The "Generate Graphics" option (4) is

not available at this time but will be used to create graphical representations of the data retrieved from GMISS. For options 1 and 2, please refer to the Gridded Model Information Support System (GMISS) User's Guide, Volume II: UAM Subsystem, April 1991, EPA-450/4-91-009.

For this example, let us assume that the modeling contact for your EPA Region has advised you to retrieve base case data for 1988, and has given you two GMISS scenario names for that data, "BASE05" and "CS01". The following sections walk you through a session in which you list the database contents and then retrieve data from the database.

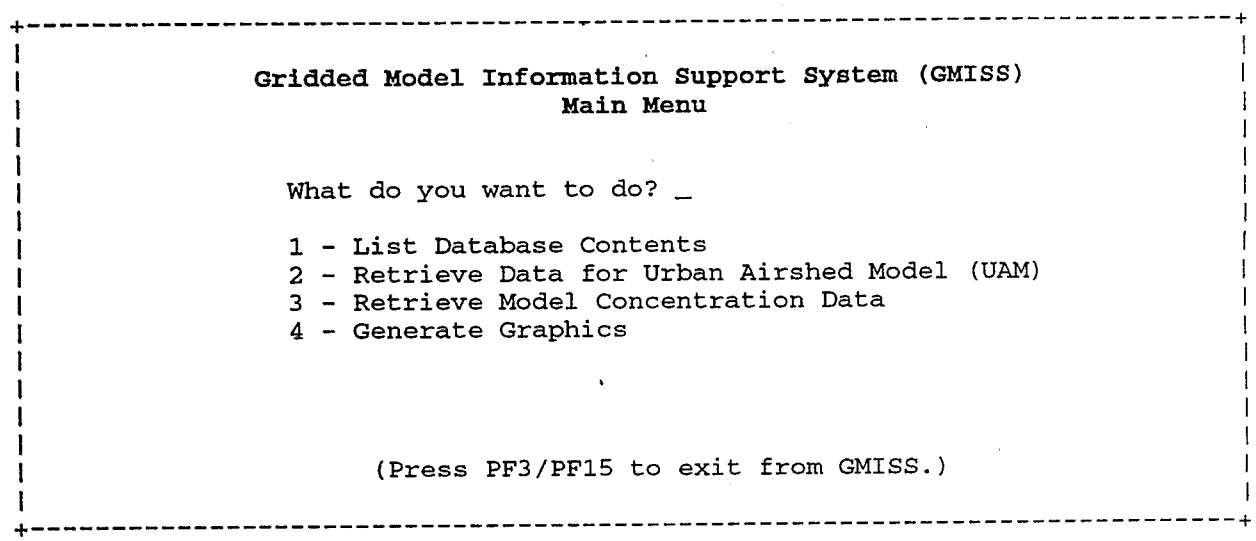

Figure 4-2. GMISS Main Menu

4.2 List Database Contents

Menu 1.0 (Figure 4-3) appears after option 1 is chosen on the main menu, and offers two choices for printing a database contents report. Option 1 selects a report for the UAM data, and option 2 selects a report for the model concentration data. Each report is inclusive. Select option 2 for a database contents report of model concentration data by typing a '2' in the blank after *What do you want to do?* and pressing the ENTER key.

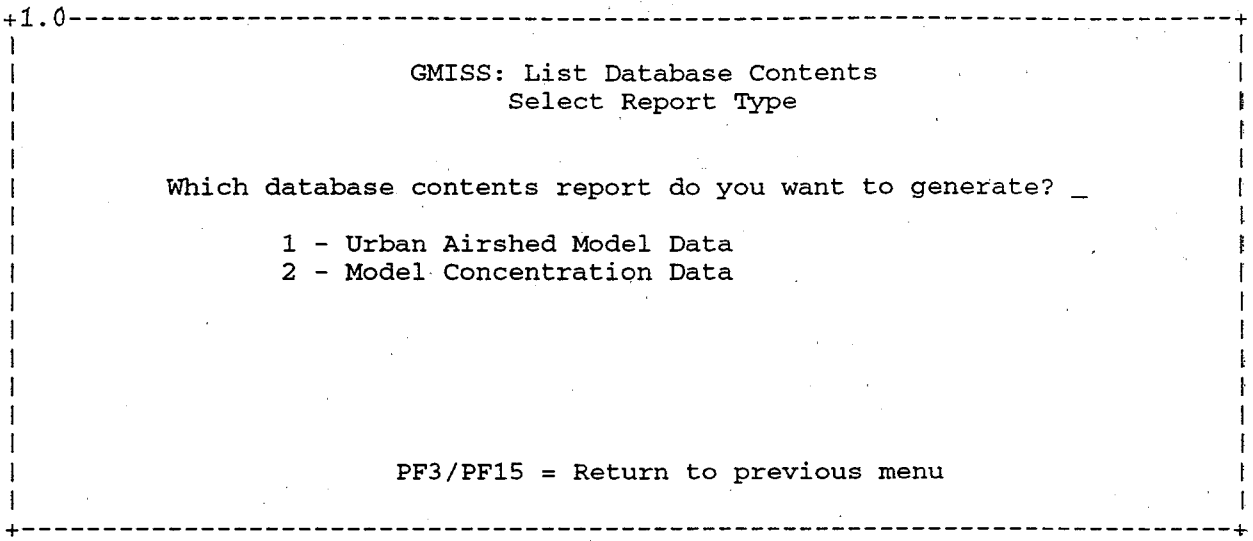

Figure 4-3. Menu 1.0 - Select Type of Database Contents Report

Menu 1.3 is displayed next and is used for specifying batch job parameters as seen in Figure 4-4. All the fields of this screen must be filled in except *NCC form*. There are initial values for job name, job time, job priority, account and destination already present on the screen. You may change these by typing over the values or leave the default values there. You can put values in for FIMAS ID, NCC bin or NCC form by typing in the blank next to the word. For this example, you need to fill in the FIMAS ID and NCC bin with the values for your general project and where to sent the output, respectively. Once the fields are filled in, press the ENTER key to submit the job. A message will appear with the job name and number. Press the ENTER key to clear the message and return to the GMISS main menu. Your output will be sent to your bin or mailed to you depending on the value you entered for NCC bin. Section 6.2 presents an example of the contents of the Model Concentration Data Subsystem Database Contents Report.

Job name	Identifier of the batch job
Job time	Maximum amount of computer processing time the job may use
Job priority	Processing priority the batch job receives
Account	Source of funds to pay for the computer resources the job uses
FIMAS ID	General project or activity the batch job supports
NCC bin	Where to send printed job output
Destination	Where to print job output
NCC form	The type of paper on which to print job output

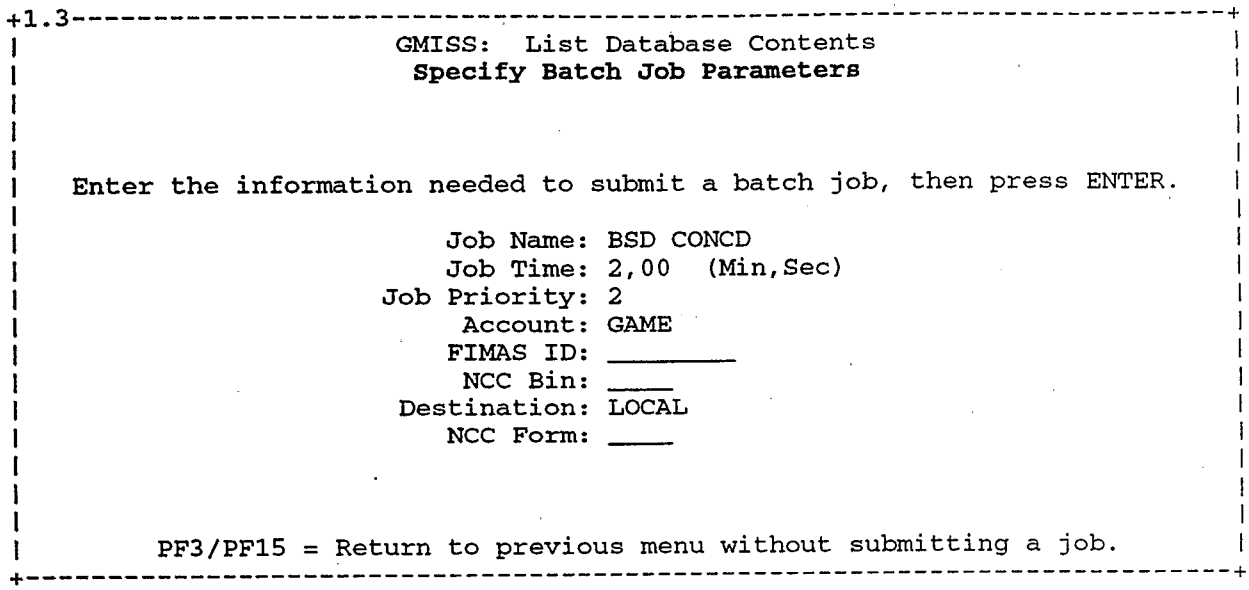

Figure 4-4. Menu 1.3 - Specify Batch Job Parameters for Database Contents Report

4.3 Specifying a Domain and Subdomain

The first step in retrieving data from the database is to choose option 3 of the GMISS main menu, *Retrieve Model Concentration Data.* Type 3 in the blank after *What do you want to do?* and press the ENTER key. This selects the data retrieval function of the Model Concentration Data Subsystem of GMISS.

Menu 3.1 (Figure 4-5), the first model concentration data retrieval menu, appears in response to choosing option 3 of the main menu. It allows a user to specify the modeling domain for which to retrieve data, and to define a subdomain, the geographic "window", of the concentration data to be retrieved. For this example, enter a "?" on the blank line opposite the word *Domain* and press the ENTER key. Menu 3.1.1 (Figure 4-6) will appear with a selection list of modeling domains for which concentration data are available for retrieval and a description of each.

```
+3.1-------------------------------------------------------------------+
|                GMISS: Retrieve Model Concentration Data              |
|                     Select Domain and Subdomain                      |
|                                                                      |
|     Specify the modeling domain for which you want to retrieve data,  |
|         then press ENTER.  To see a list of domains, enter "?".      |
|                                                                      |
|                              Domain: _________                       |
|                                                                      |
|                                                                      |
|                                                                      |
|                                                                      |
|                                                                      |
|                                                                      |
|                                                                      |
|                                                                      |
|                      PF3/PF15 = Return to main menu                  |
+----------------------------------------------------------------------+
```

Figure 4-5. Menu 3.1 - Appearance Upon Initial Use

```
+3.1.1-----------------------------------------------------------------+
|                GMISS: Retrieve Model Concentration Data              |
|                          Select Domain                               |
|                                                                      |
|   Move (tab) the cursor to the domain you want to select and press ENTER. |
|                                                                      |
| (PF8/PF20=scroll forward,  PF7/PF19=scroll backward,  PF3/PF15=prev. menu) |
|                                                                      |
|   Domain     -------------------------Description--------------------------- |
|                                                                      |
|   MIDROXA1  Midwest region for oxidant studies                       |
|              76 Cols   72 Rows  SW corner lon: 97.00  lat: 35.00  degrees |
|             Models: ROM22                                            |
|                                                                      |
|   ROMNET1   Northeast region for oxidant studies                     |
|              64 Cols   52 Rows  SW corner lon: 85.00  lat: 36.33  degrees |
|             Models: ROM21, ROM22                                     |
|                                                                      |
|                                                                      |
|                                                                      |
|                                                                      |
+----------------------------------------------------------------------+
```

Figure 4-6. Domain Selection Menu

```
+3.1-----------------------------------------------------------------------+
|                  GMISS: Retrieve Model Concentration Data                |
|                        Select Domain and Subdomain                       |
|                                                                          |
|        Specify the modeling domain for which you want to retrieve data,  |
|            then press ENTER.  To see a list of domains, enter "?".       |
|                                                                          |
|                            Domain: ROMNET1                               |
|                                                                          |
|                            -- Subdomain --                               |
|                                                                          |
|   Enter column-row or longitude-latitude ranges to define a rectangular  |
|   subdomain.  Erase (leave blank) all fields to select the entire domain.|
|                                                                          |
|   West-to-East                     1    64  |               85 00    69 00 |
|   Dimension              Columns: ___ - ___ |  Longitude: __ __ - __ __   |
|                                             |                            |
|   South-to-North                   1    52  |               36 20    45 00 |
|   Dimension                 Rows: ___ - ___ |   Latitude: __ __ - __ __   |
|                                                           dd:mm    dd:mm  |
|                                                                          |
|                       PF3/PF15 = Return to main menu                     |
+--------------------------------------------------------------------------+
```

Figure 4-7. The Selected Domain Name Is Filled In

Select the ROMNET1 domain, following the directions given on the menu and press the ENTER key. Figure 4-7 shows the result. You are back to Menu 3.1, and the name of the domain you chose has been filled in along with domain boundary information available to help you specify a subdomain. This is how Menu 3.1 will appear the second and subsequent times you retrieve model concentration data (i.e., selection criteria entered the previous time are "remembered").

The subdomain can be defined by either row and column numbers, by longitude and latitude values or a combination of the two. For this example, select and enter the values shown in Figure 4-8. Once you have the values in place, press the ENTER key and the screen will look like Figure 4-9. The west longitude of 84'00" was calculated from the west column number 5 and the east column number 52 was calculated from the east longitude of 72'00". If you had entered a value for both the east column and longitude, the column would take precedence and recalculate the longitude.

Notice the north and south coordinates are highlighted. The menu program has exchanged the row coordinates and is asking for confirmation. Also the *minutes* fields left blank in Figure 4-8 have been converted to zeros, and all the values entered in the left

side of fields have been shifted to the right side. The exchanged coordinates now correctly represent the subdomain you have chosen, so press the ENTER key to accept them.

```
+3.1-------------------------------------------------------------------------+
|                  GMISS: Retrieve Model Concentration Data                  |
|                        Select Domain and Subdomain                         |
|                                                                            |
|        Specify the modeling domain for which you want to retrieve data,    |
|           then press ENTER.  To see a list of domains, enter "?".          |
|                                                                            |
|                             Domain: ROMNET1                                |
|                                                                            |
|                             -- Subdomain --                                |
|  Enter column-row or longitude-latitude ranges to define a rectangular     |
|  subdomain.  Erase (leave blank) all fields to select the entire domain.   |
|                                                                            |
|  West-to-East                  1    64    |                85 00    69 00  |
|  Dimension           Columns: 5__ - ___   |   Longitude: ___ __ - 72_ __   |
|                                           |                                |
|  South-to-North                1    52    |                36 20    45 00  |
|  Dimension              Rows: 45_ - 11_   |    Latitude:  __ __ -  __ __   |
|                                                           dd:mm    dd:mm   |
|                       PF3/PF15 = Return to main menu                       |
+----------------------------------------------------------------------------+
```

Figure 4-8. Specifying Coordinates of a Subdomain

```
+3.1-------------------------------------------------------------------------+
|                  GMISS: Retrieve Model Concentration Data                  |
|                        Select Domain and Subdomain                         |
|                                                                            |
|        Specify the modeling domain for which you want to retrieve data,    |
|           then press ENTER.  To see a list of domains, enter "?".          |
|                                                                            |
|                             Domain: ROMNET1                                |
|                 Row values exchanged. Press ENTER to accept.               |
|                             -- Subdomain --                                |
|                                                                            |
|  Enter column-row or longitude-latitude ranges to define a rectangular     |
|  subdomain.  Erase (leave blank) all fields to select the entire domain.   |
|                                                                            |
|  West-to-East                  1    64    |                85 00    69 00  |
|  Dimension           Columns:  5 - 52     |   Longitude:   84 00 -  72 00  |
|                                           |                                |
|  South-to-North                1    52    |                36 20    45 00  |
|  Dimension              Rows: 11 - 45     |    Latitude:   38 00 -  43 50  |
|                                                           dd:mm    dd:mm   |
|                       PF3/PF15 = Return to main menu                       |
+----------------------------------------------------------------------------+
```

Figure 4-9. A Message Notes the Exchange of Coordinates to Correct the Error

4.4 Choosing a Simulation for Concentration Data Retrieval

Menu 3.2 (Figure 4-10) appears once everything selected on menu 3.1 is correct and the ENTER key pressed. You can enter values for model, study, and scenario to specify which set of concentration data to retrieve. The *domain* value specified on the previous menu is displayed in the middle of the screen, below the instructions. If there is only one possible value for those fields, the program fills in the blanks and makes the fields unchangeable; they become *protected fields*. The second sentence of the instructions on the menu explains this feature. Since there are multiple models, studies, and scenarios available with the domain ROMNET1, for this example type in *ROM21* for model, *ROMNET* for study and *BASE88* for scenario on the blank lines beside them. Your screen should resemble Figure 4-11.

```
+3.2-------------------------------------------------------------------------+
|                  GMISS: Retrieve Model Concentration Data                  |
|                      Specify Data Selection Criteria                       |
|                                                                            |
|  Enter values that define the data you want to retrieve, and press ENTER.  |
|  If you cannot tab to Model, Study, or Scenario, only the value displayed  |
|  is available. "*" in these fields means multiple values were specified;   |
|  enter "?" to see a list cf available and selected values. Leave a field   |
|  blank to select all possible values, and the next screen will list them.  |
|                                                                            |
|                                                                            |
|                                Domain: ROMNET1                             |
|                                                                            |
|                                 Model: _________                           |
|                                 Study: _________                           |
|                              Scenario: _________                           |
|                 First Date to Retrieve: _________ (mm/dd/yy)               |
|                  Last Date to Retrieve: _________ (mm/dd/yy)               |
|                                                                            |
|                                                                            |
|                                                                            |
|                                                                            |
|                      PF3/PF15 = Return to previous menu                    |
+----------------------------------------------------------------------------+
```

Figure 4-10. Model Concentration Data Subsystem Menu for Data Selection Criteria

```
+3.2-------------------------------------------------------------------+
|                GMISS: Retrieve Model Concentration Data              |
|                    Specify Data Selection Criteria                   |
|                                                                      |
|  Enter values that define the data you want to retrieve, and press ENTER.  |
|  If you cannot tab to Model, Study, or Scenario, only the value displayed  |
|  is available. "*" in these fields means multiple values were specified;   |
|  enter "?" to see a list of available and selected values. Leave a field   |
|  blank to select all possible values, and the next screen will list them.  |
|                                                                      |
|                              Domain: ROMNET1                         |
|                                                                      |
|                               Model: rom21___                        |
|                               Study: romnet__                        |
|                            Scenario: base88__                        |
|                 First Date to Retrieve: ________ (mm/dd/yy)          |
|                  Last Date to Retrieve: ________ (mm/dd/yy)          |
|                                                                      |
|                                                                      |
|                      PF3/PF15 = Return to previous menu              |
+----------------------------------------------------------------------+
```

Figure 4-11. Entering Selection Criteria

```
+3.2-------------------------------------------------------------------+
|                GMISS: Retrieve Model Concentration Data              |
|                    Specify Data Selection Criteria                   |
|                                                                      |
|  Enter values that define the data you want to retrieve, and press ENTER.  |
|  If you cannot tab to Model, Study, or Scenario, only the value displayed  |
|  is available. "*" in these fields means multiple values were specified;   |
|  enter "?" to see a list of available and selected values. Leave a field   |
|  blank to select all possible values, and the next screen will list them.  |
|                                                                      |
|          Invalid SCENARIO. Correct it or enter '?' for a list.       |
|                              Domain: ROMNET1                         |
|                                                                      |
|                               Model: ROM21___                        |
|                               Study: ROMNET__                        |
|                            Scenario: BASE88                          |
|                 First Date to Retrieve: ________ (mm/dd/yy)          |
|                  Last Date to Retrieve: ________ (mm/dd/yy)          |
|                                                                      |
|                                                                      |
|                      PF3/PF15 = Return to previous menu              |
+----------------------------------------------------------------------+
```

Figure 4-12. Scenario Name Is Incorrect

Recall that we assumed your Regional modeling contact advised you to retrieve the scenarios named "BASE05" and "CS01". In order to illustrate some features of GMISS menus, you typed "base88" in the *scenario* field, as shown in Figure 4-11. The *scenario*

field is highlighted and an error message has appeared under the instructions in Figure 4-12. It says GMISS does not have a scenario named "BASE88".

Notice that the instructions on the menu say you can get a list of the valid scenario names by entering a question mark in the first position of the *scenario* field. (You could get lists of studies, domains, and models in the same way, if there were more than one possible value for those fields.) Type a question mark, as Figure 4-13 shows, and press the ENTER key. Notice that you did not have to erase the rest of the *scenario* field, after the question mark.

```
+3.2-------------------------------------------------------------------+
|                  GMISS: Retrieve Model Concentration Data             |
|                      Specify Data Selection Criteria                  |
|                                                                       |
|  Enter values that define the data you want to retrieve, and press ENTER.
|  If you cannot tab to Model, Study, or Scenario, only the value displayed
|  is available. "*" in these fields means multiple values were specified;
|  enter "?" to see a list of available and selected values. Leave a field
|  blank to select all possible values, and the next screen will list them.
|                                                                       |
|          Invalid SCENARIO. Correct it or enter '?' for a list.        |
|                            Domain: ROMNET1                            |
|                                                                       |
|                             Model: ROM21___                           |
|                             Study: ROMNET__                           |
|                          Scenario: ?ASE88                             |
|               First Date to Retrieve: _________ (mm/dd/yy)           |
|                Last Date to Retrieve: _________ (mm/dd/yy)           |
|                                                                       |
|                                                                       |
|                                                                       |
|                     PF3/PF15 = Return to previous menu                |
+-------------------------------------------------------------------+
```

Figure 4-13. Requesting a List of Scenario Names

Figure 4-14 is the "help" screen that appears after you press the ENTER key. The bottom half of the screen lists the names of two scenarios and describes the conditions of the corresponding ROM simulations. The top half of the screen includes instructions on how to select the scenarios. Note that BASE05, one of the scenarios you want, is listed. Place a 's' on the blank opposite the scenario name. What if the scenario you are looking for is not listed on the screen? You can scroll the list by pressing the PF8 (or PF20) key of your terminal, and Figure 4-15 shows the result. "CS01" is the other scenario you need so place a 's' on the blank beside it also. The scenario names are listed in alphabetical

order. You can press the PF8 key again to see more scenario names and descriptions, if you wish. Then scroll the list back to the BASE05 scenario by pressing the PF7 (or PF19) key as many times as you pressed the PF8 key, or by pressing the PF10 (or PF22) key once. Your screen should look like Figure 4-16. The message "2 currently selected", lets you know how many scenarios you have selected. Now press the ENTER key since you have selected both the scenarios you need.

```
+3.2.3-------------------------------------------------------------------------+
|                    GMISS: Retrieve Model Concentration Data                  |
|                                Select Scenario(s)                            |
|                                                                              |
|     Type "S" beside the scenario(s) you want to select and press ENTER.      |
|                                                                              |
| (PF8/PF20=scroll forward,  P7/PF19=scroll backward,  PF3/PF15=prev. menu)    |
|                                                                              |
|     Scenario  ------------------------Description-------------------------- |
|                                                                              |
| s   BASE05    ROMNET 2005 Baseline: Derived from 1985 Base Case (BASE85).    |
|               Includes projected emissions due to growth between 1985 and    |
|               2005 and the effects of existing control programs.             |
|                                                                              |
|                                                                              |
| _   BASE85    ROMNET 1985 Base Case: Anthropogenic emissions derived from    |
|               1985 NAPAP inventories.  Mobile emissions computed by          |
|               MOBILE4 and adjusted for temperature effects.  Biogenic        |
|               emissions computed by BEIS.                                    |
|                                                                              |
+------------------------------------------------------------------------------+
```

Figure 4-14. First Page of the Scenario "Help" Screen

```
+3.2.3-------------------------------------------------------------------------+
|                    GMISS: Retrieve Model Concentration Data                  |
|                                Select Scenario(s)                            |
|                                                                              |
|     Type "S" beside the scenario(s) you want to select and press ENTER.      |
|                            1 currently selected.                             |
| (PF8/PF20=scroll forward,  P7/PF19=scroll backward,  PF3/PF15=prev. menu)    |
|                                                                              |
|     Scenario  ------------------------Description-------------------------- |
|                                                                              |
| _   BASE85A   Initial ROMNET 1985 Base Case: Anthropogenic emissions         |
|               derived from 1985 NAPAP inventories.  Mobile emissions         |
|               computed by MOBILE3.9 and adjusted for temperature effects.    |
|               Biogenic emissions computed by BEIS.                           |
|                                                                              |
|                                                                              |
| s   CS01      ROMNET Strategy 1: Maximum technology VOC controls applied     |
|               to the 2005 Baseline region-wide.  NOx, CO, and Canadian       |
|               emissions are at the 2005 Baseline.  MOBILE 3.9 used for       |
|               mobile emissions.                                              |
|                                                                              |
+------------------------------------------------------------------------------+
```

Figure 4-15. Second Page of the Scenario "Help" Screen

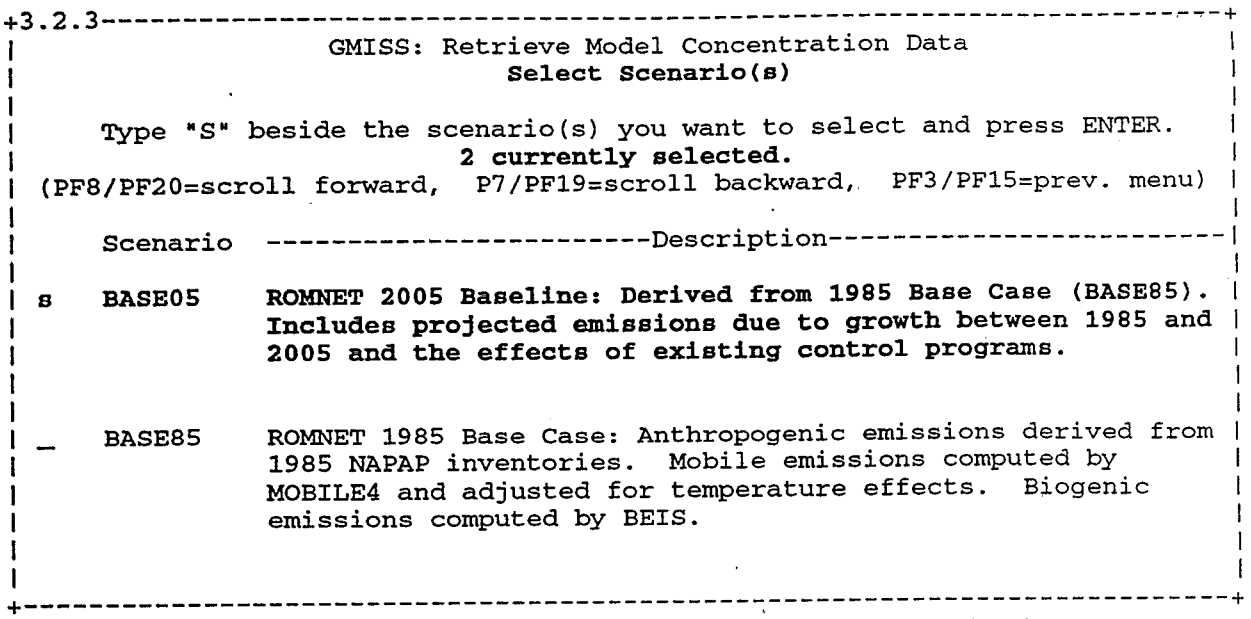

Figure 4-16. First Page of the "Help" Screen with both Scenarios Selected

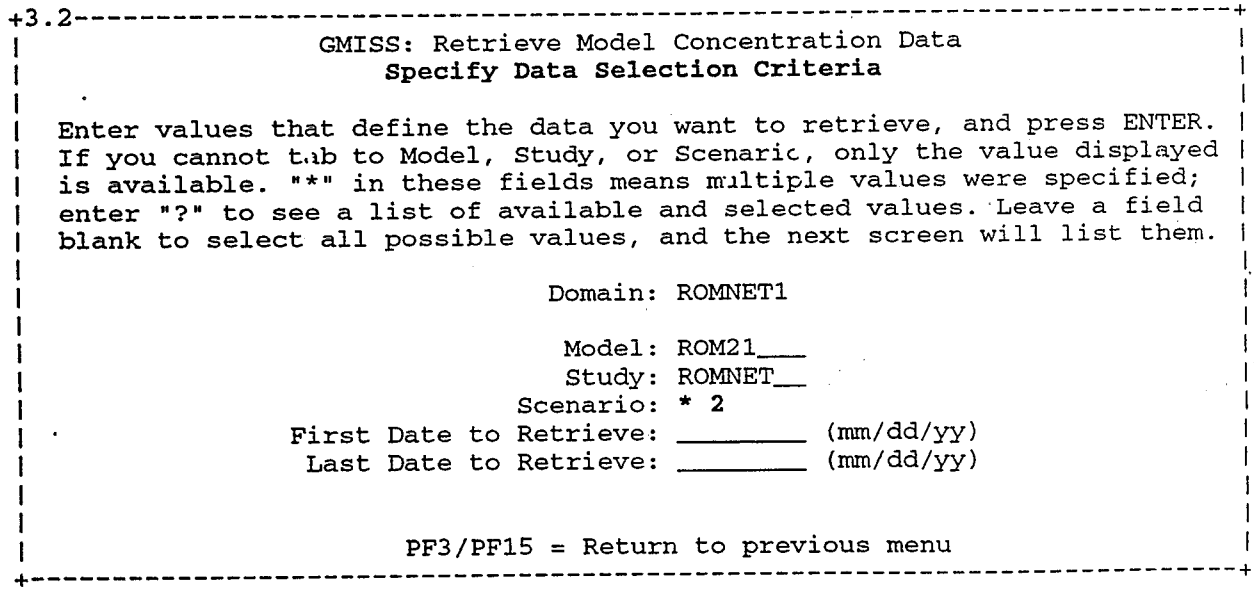

Figure 4-17. Multiple Scenarios Selected

Figure 4-17 shows the result of your selections on menu 3.2. The scenario field contains an '*' showing that multiple scenarios were chosen and the number '2' to display how many were selected. If you had gone to the "Select Scenario(s)" screen and selected only one entry, the field on menu 3.2 would contain that scenario name you chose and not an '*'.

4.5 Specifying Dates

Now you need to specify for which days of the simulation to retrieve data. The GMISS database contents report that you can obtain using option 1 of the main menu lists the dates available for every scenario, but there is another way to find out. Notice the last line of the instructions on menu 3.2: *Leave a field blank to select all possible values, and the next screen will list them.* Try that. Leave the screen just as it appears in Figure 4-17, with nothing in the date fields, and press the ENTER key. The "Select from Available Data" menu 3.3 (Figure 4-18) appears on your terminal screen.

```
+3.3-------------------------------------------------------------------+
|              GMISS: Retrieve Data For Concentration Data             |
|                        Select From Available Data                    |
|                           Domain: ROMNET1                            |
|  Available data matching your initial selection criteria are listed below.|
|  Type "S" beside each entry(s) you want to retrieve; change the date range|
|  if you wish.  Press ENTER to accept the selected entry(s) and continue.  |
|                                                                      |
| (PF8/PF20=scroll forward,  PF7/PF19=scroll backward,  PF3/PF15=prev. menu)|
|                                                                      |
|   SELECT   Dates Available       Scenario     Study        Model     |
|                                                                      |
|      _   06/08/83 - 06/20/83     BASE05       ROMNET       ROM21     |
|      _   07/02/88 - 07/17/88     BASE05       ROMNET       ROM21     |
|      _   07/02/88 - 07/17/88     CS01         ROMNET       ROM21     |
|                                                                      |
+----------------------------------------------------------------------+
```

Figure 4-18. The Dates Available for Scenarios BASE85 and CS01

Although it is similar in function to the "Select Scenario(s)" menu you used earlier (Figure 4-14), this screen is different. It does not explain any of the fields, it simply lists the available values. It shows the *combinations* of field values in the GMISS database that meet the criteria listed in menu 3.2 (Figure 4-17), rather than the allowed values for just one field. The lines under the column headings show time periods when data are available for the scenarios you selected on the previous menu. Each entry in the list (each line) represents a series of consecutive days, with no interruptions. (If you had left the *scenario* field blank on the previous menu, this menu would have listed the dates available for the BASE05 scenario, then for BASE85, and for the other scenarios in order. Figure 3-3 shows how your terminal screen would have looked. You could have scrolled the list and chosen both the scenario and the date range with this menu.)

The menu instructions say to select an entry from the list by entering an *S*. Use the TAB key to position the cursor on the *select* field beside the first and last entries of the list, and type *s*. (Do not press the ENTER key yet.) The instructions also say that you can change the date range of the entry. Since this is just a 'test run' to gain experience with the menus, retrieve data for a shorter time span. Change the first date of scenario BASE05 to June 20, 1983 by typing *06/20/83* in the first date field. Try specifying just one day--July 4, 1991--for scenario CS01 by moving the cursor over to the first and second dates and typing *07/04/91* in both fields. Your screen should look like Figure 4-19.

```
+3.3-------------------------------------------------------------------+
|              GMISS: Retrieve Data For Concentration Data             |
|                        Select From Available Data                    |
|                           Domain: ROMNET1                            |
|  Available data matching your initial selection criteria are listed below.|
|  Type "S" beside each entry(s) you want to retrieve; change the date range|
|  if you wish.  Press ENTER to accept the selected entry(s) and continue.  |
|                                                                      |
| (PF8/PF20=scroll forward,  PF7/PF19=scroll backward,  PF3/PF15=prev. menu)|
|                                                                      |
|   SELECT   Dates Available       Scenario     Study        Model     |
|                                                                      |
|      s   06/20/83 - 06/20/83     BASE05       ROMNET       ROM21     |
|      _   07/02/88 - 07/17/88     BASE05       ROMNET       ROM21     |
|      s   07/04/91 - 07/04/91     CS01         ROMNET       ROM21     |
|                                                                      |
+----------------------------------------------------------------------+
```

Figure 4-19. Selecting and Altering a Date Range

```
+3.3-------------------------------------------------------------------+
|              GMISS: Retrieve Data For Concentration Data             |
|                        Select From Available Data                    |
|                           Domain: ROMNET1                            |
|  Available data matching your initial selection criteria are listed below.|
|  Type "S" beside each entry(s) you want to retrieve; change the date range|
|  if you wish.  Press ENTER to accept the selected entry(s) and continue.  |
|                                                                      |
| (PF8/PF20=scroll forward,  PF7/PF19=scroll backward,  PF3/PF15=prev. menu)|
|          Available dates are 07/02/88 through 07/17/88.              |
|   SELECT   Dates Available       Scenario     Study        Model     |
|                                                                      |
|      s   06/20/83 - 06/20/83     BASE05       ROMNET       ROM21     |
|      _   07/02/88 - 07/17/88     BASE05       ROMNET       ROM21     |
|      s   07/04/91 - 07/04/91     CS01         ROMNET       ROM21     |
|                                                                      |
+----------------------------------------------------------------------+
```

Figure 4-20. An Error Message Indicates a Problem With the Date Range

Now press the ENTER key. An error message appears on the menu, and the dates are highlighted in the line you selected. Figure 4-20 shows how the screen looks. The error message explains what is wrong: you put in a date which was not in the range of available dates. Change the highlighted dates to the year 1988, as shown in Figure 4-21, and press the ENTER key. The dates are now accepted.

```
+3.3-------------------------------------------------------------------------+
|                GMISS: Retrieve Data For Concentration Data                |
|                          Select From Available Data                       |
|                             Domain: ROMNET1                               |
|  Available data matching your initial selection criteria are listed below.|
|  Type "S" beside each entry(s) you want to retrieve; change the date range|
|  if you wish.  Press ENTER to accept the selected entry(s) and continue.  |
|                                                                           |
| (PF8/PF20=scroll forward,  PF7/PF19=scroll backward,  PF3/PF15=prev. menu)|
|             Available dates are 07/02/88 through 07/17/88.                |
|   SELECT   Dates Available       Scenario     Study        Model          |
|                                                                           |
|      s   06/20/83 - 06/20/83     BASE05       ROMNET       ROM21          |
|      _   07/02/88 - 07/17/88     BASE05       ROMNET       ROM21          |
|      s   07/04/88 - 07/04/88     CS01         ROMNET       ROM21          |
|                                                                           |
|                                                                           |
+---------------------------------------------------------------------------+
```

Figure 4-21. Correcting the Date Problem

4.6 Selecting Species and Layers

The next menu to appear asks you to choose the chemical species and model layers for which GMISS will retrieve concentration data. Figure 4-22 shows the screen, which has a list of the available species and layers for the model(s) you selected on menu 3.2. (The "....." entries indicate unused positions in the list and are protected fields.) Follow the menu instructions and type *S* beside species 'CO' and 'OH' as shown in Figure 4-23 and press the ENTER key. Figure 4-24 shows an error message stating you must select at least one layer. Type *S* beside layer '1' to correct the problem as shown in Figure 4-24.

```
+3.4-------------------------------------------------------------------+
|                  GMISS: Retrieve Model Concentration Data            |
|                         Select Layers and Species                    |
|                                                                      |
|           Type "S" beside the model layers and chemical species      |
|                 you want to select, and press ENTER.                 |
|                                                                      |
|  Layers:                                                             |
|  _ 1            _ 2            _ 3                                   |
|                                                                      |
|  Species:                                                            |
|  _ ALD2         _ CO           _ C2O3         _ ETH          _ FORM  |
|  _ HNO2         _ HNO3         _ HO2          _ H2O2         _ ISOP  |
|  _ MTHL         _ NO           _ NONR         _ NO2          _ NO3   |
|  _ N2O5         _ OH           _ OLE          _ O3           _ PAN   |
|  _ PAR          _ TOL          _ TRAC         _ XO2          _ XYL   |
|  _ ........     _ ........     _ ........     _ ........     _ ........|
|  _ ........     _ ........     _ ........     _ ........     _ ........|
|  _ ........     _ ........     _ ........     _ ........     _ ........|
|                                                                      |
|                      PF3/PF15 = Return to previous menu              |
+----------------------------------------------------------------------+
```

Figure 4-22. Select Layers and Species

```
+3.4-------------------------------------------------------------------+
|                  GMISS: Retrieve Model Concentration Data            |
|                         Select Layers and Species                    |
|                                                                      |
|           Type "S" beside the model layers and chemical species      |
|                 you want to select, and press ENTER.                 |
|                      Select at least one layer.                      |
|  Layers:                                                             |
|  _ 1            _ 2            _ 3                                   |
|                                                                      |
|  Species:                                                            |
|  _ ALD2         S CO           _ C2O3         _ ETH          _ FORM  |
|  _ HNO2         _ HNO3         _ HO2          _ H2O2         _ ISOP  |
|  _ MTHL         _ NO           _ NONR         _ NO2          _ NO3   |
|  _ N2O5         S OH           _ OLE          _ O3           _ PAN   |
|  _ PAR          _ TOL          _ TRAC         _ XO2          _ XYL   |
|  _ ........     _ ........     _ ........     _ ........     _ ........|
|  _ ........     _ ........     _ ........     _ ........     _ ........|
|                                                                      |
|                      PF3/PF15 = Return to previous menu              |
+----------------------------------------------------------------------+
```

Figure 4-23. An Error Message Indicates Select at Least One Layer

```
+3.4-------------------------------------------------------------------------+
|                  GMISS: Retrieve Model Concentration Data                 |
|                         Select Layers and Species                         |
|                                                                           |
|           Type "S" beside the model layers and chemical species           |
|                you want to select, and press ENTER.                       |
|                         Select at least one layer.                        |
|  Layers:                                                                  |
|  s 1            _ 2            _ 3                                        |
|                                                                           |
|  Species:                                                                 |
|  _ ALD2         S CO           _ C2O3         _ ETH          _ FORM       |
|  _ HNO2         _ HNO3         _ HO2          _ H2O2         _ ISOP       |
|  _ MTHL         _ NO           _ NONR         _ NO2          _ NO3        |
|  _ N2O5         S OH           _ OLE          _ O3           _ PAN        |
|  _ PAR          _ TOL          _ TRAC         _ XO2          _ XYL        |
|  _ ........     _ ........     _ ........     _ ........     _ ........   |
|  _ ........     _ ........     _ ........     _ ........     _ ........   |
|                                                                           |
|                      PF3/PF15 = Return to previous menu                   |
+-------------------------------------------------------------------------+
```

Figure 4-24. Correcting the Layer Problem

4.7 Retrieval File Names

Figure 4-25 shows the next menu to appear. It prompts you to specify the name of the retrieval file to be created and how the data retrieval takes place. For this example, you will run a batch job creating a sequential dataset using the default file name. In order to accomplish this, type *B* for batch in the blank beside the *Data Retrieval Mode* and *Q* beside *Retrieval File Type*. The filename that appears next to the *Default File Name* will be the concentration data file created by GMISS. You can specify a different file name on the line next to the *Retrieval File Name* if you do not want the default, but for this example leave it blank. Figure 4-26 shows your selections.

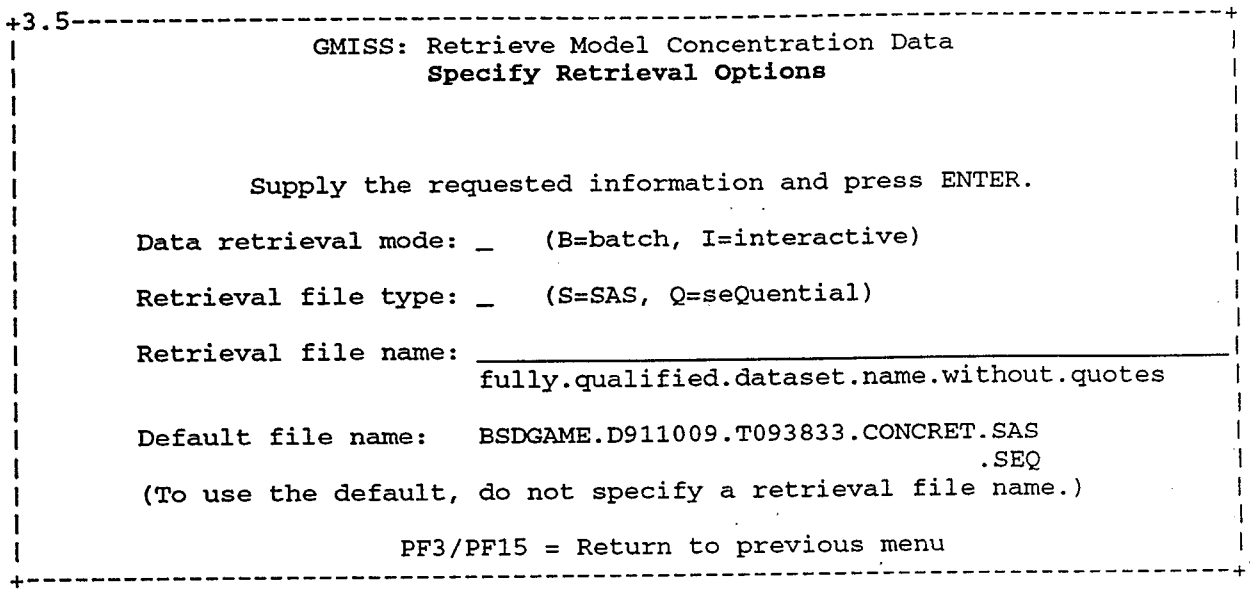

Figure 4-25. Specify Retrieval Options

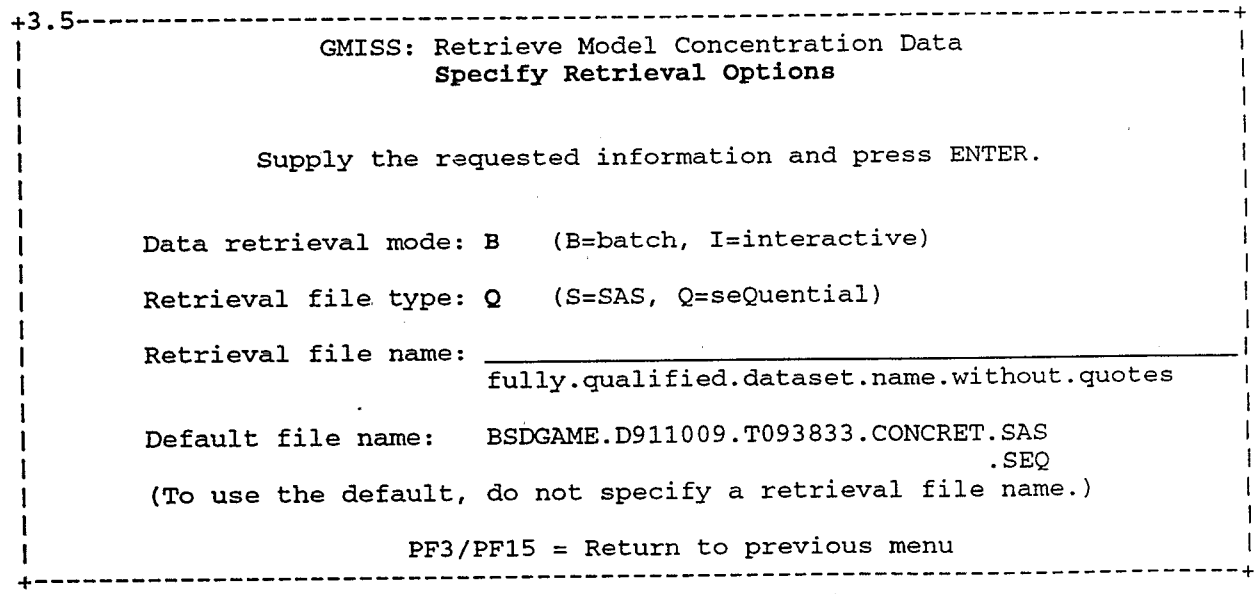

Figure 4-26. Batch and Sequential Chosen

4.8 Batch Job Parameters

The next menu, shown in Figure 4-27, solicits batch job parameters. These items are used to construct the control statements(JCL) for the batch job that will extract the data you have requested from the GMISS database and create the retrieval files. Most of the

fields have default values. You could change them if you want to, but you *must choose* valid values or the batch job probably will not run. (Section 5.11 in the next chapter explains what the fields mean and describes valid values.) You must fill in values for two fields that don't have defaults, *FIMAS ID* and *NCC bin.* For FIMAS ID (a type of accounting code required by the EPA computer center management), enter the code supplied by your Regional modeling contact. For NCC bin, enter the letter *M* followed by your EPA computer system user-id. This code "tells" the computer center to mail printed output to you. Figure 4-28 shows terminal screen at this point, with user-id "BSD".

```
+3.6-------------------------------------------------------------------+
|                  GMISS: Retrieve Model Concentration Data            |
|                        Specify Batch Job Parameters                  |
|                                                                      |
|                                                                      |
|   Enter the information needed to submit a batch job, then press ENTER.   |
|                                                                      |
|                           Job Name: BSD CONCR                        |
|                           Job Time: 0,30  (Min,Sec)                  |
|                       Job Priority: 2                                |
|                            Account: GAME                             |
|                           FIMAS ID: ________                         |
|                            NCC Bin: ____                             |
|                        Destination: LOCAL                            |
|                           NCC Form: _____                            |
|                                                                      |
|                                                                      |
|        PF3/PF15 = Return to previous menu without submitting a job.  |
+----------------------------------------------------------------------+
```

Figure 4-27. Default Batch Job Parameters

```
+3.6-------------------------------------------------------------------+
|                  GMISS: Retrieve Model Concentration Data            |
|                        Specify Batch Job Parameters                  |
|                                                                      |
|                                                                      |
|   Enter the information needed to submit a batch job, then press ENTER.   |
|                                                                      |
|                           Job Name: BSD CONCR                        |
|                           Job Time: 0,30  (Min,Sec)                  |
|                       Job Priority: 2                                |
|                            Account: GAME                             |
|                           FIMAS ID: aqmsd___                         |
|                            NCC Bin: mbsd_                            |
|                        Destination: LOCAL                            |
|                           NCC Form: _____                            |
|                                                                      |
|                                                                      |
|        PF3/PF15 = Return to previous menu without submitting a job.  |
+----------------------------------------------------------------------+
```

Figure 4-28. Supplying the Missing Batch Job parameters

4.9 Batch Job Submission

When you press the ENTER key, the menu program submits a batch job using the parameters and the data selection criteria you entered during the session. The computer system issues a TSO message to confirm that the batch job has been submitted and to list the *job name* and *job number*. Figure 4-29 shows how the terminal screen looks when the message appears. The three asterisks under the message mean that the computer system is waiting for you to press the ENTER key in order to continue. You should write down the job name and number in case you need to know them later to check the status of the batch job.

```
IKJ56250I JOB BSDCONCR(JOB24290) SUBMITTED
***
```

Figure 4-29. TSO Message Confirming Batch Job Submission

```
                Gridded Model Information Support System (GMISS)
                                Main Menu

                  What do you want to do? 3

                  1 - List Database Contents
                  2 - Retrieve Data for Urban Airshed Model (UAM)
                  3 - Retrieve Model Concentration Data
                  4 - Generate Graphics


                       (Press PF3/PF15 to exit from GMISS.)
```

Figure 4-30. Main Menu Returns When Retrieval Request Is Completed

When you press ENTER, the GMISS main menu appears again, as shown in Figure 4-30. Notice that it has retained the 3 you entered earlier as the choice *What do you want to do?* If you wanted to start another retrieval request, you could simply press ENTER.

4.10 Exiting From GMISS

One retrieval job is enough for this example, and it is time to get out of the GMISS menus. Following the instructions displayed on the GMISS main menu (Figure 4-30), press the PF3 (or PF15) key to exit. After a brief pause, the screen clears, and TSO gives its "READY" prompt as shown in Figure 4-31.

```
READY
```

Figure 4-31. The TSO "READY" Prompt That Appears After Exiting From GMISS

4.11 Checking the Data Extraction

If you used B001 as the NCC bin, the printed output generated by the batch job will be delivered to bin "001" in the next day or two. If M*uid* was used, it may take a little longer for the mail to reach you. When the batch job is complete, it can be viewed in the hold queue if your destination was HOLD. At the end of the printout, after the JCL listing and accounting information, is a short report that lists the data selection criteria you specified and summarizes the "progress" of the data extraction. Figure 4-32 shows the report. It indicates that the batch job extracted all the data you selected and created retrieval files.

The first line of the report states when the batch job began executing. Next is a listing of all the specifications you entered on the Model Concentration Data Retrieval Subsystem menus, plus some additional information. For example, the report gives the date range of the retrieved data in the Gregorian format (04JUL88) you used in the menu, and also in the Julian format (88186). The report includes the data retrieval file name, the row, column, longitude and latitude for the subdomain, the layers and species, and the date ranges that were selected. (If you had re-used an existing retrieval file to hold the retrieved data, the report would have *OLD* as the disposition.) The last line of the report tells when the batch job finished executing.

By examining this report, you can verify that the batch job finished successfully. If the batch job had not completed the data extraction due to a problem, the last line would not be *Finished GMISS model concentration data retrieval at....* In that case you should look carefully at the JCL listing and IBM system messages to determine what went wrong. Your Regional modeling contact and the user support department of the EPA National Computer Center can help to resolve this kind of problem.

```
--------------------------------------------------------------------------------
Began GMISS model concentration data retrieval at 13:13:19 on Friday,
October 11, 1991
--------------------------------------------------------------------------------
Summary of retrieval specifications:
 Retrieval File Name: BSDGAME.D911011.T131252.CONCRET.SEQ
                Type: Sequential
                Disp: New

 Domain: ROMNET1

 Subdomain Size and Location:
    48 columns (5-52)       Longitude  84:00:00 - 72:00:00  (d:m:s)
    35 rows    (11-45)      Latitude   38:00:00 - 43:50:00  (d:m:s)

 Layers:
  1: 1

 Species:
  1: CO         2: OH

 Simulations:
     Model      Study      Scenario     Date Range
     -----      -----      --------  ---------------
  1: ROM21      ROMNET     BASE05    20JUN83-20JUN83  (83171-83171)
  2: ROM21      ROMNET     CS01      04JUL88-04JUL88  (88186-88186)

--------------------------------------------------------------------------------
Finished GMISS model concentration data retrieval at 13:14:14 on Friday,
October 11, 1991
--------------------------------------------------------------------------------
```

Figure 4-32. Summary Report for Batch Data Retrieval Processing

5. MENU REFERENCE

This chapter describes the Model Concentration Data Retrieval Subsystem menus. It begins with an outline of the menu structure, illustrating how menus are related to each other and the order in which they occur as you use the subsystem. The rest of the chapter gives detailed descriptions of the menus. Each description explains a menu's purpose, tells how to use it, and lists error messages and tells what causes them.

5.1 Menu Outline

The Model Concentration Data Retrieval Subsystem menus allow you to specify what information you want to retrieve from GMISS. Figure 5-1 illustrates how the menus are related to each other and the order in which they appear on your terminal screen.

The GMISS main menu is the starting point for any type of information retrieval. Four paths branch out from the main menu, corresponding to the four choices available: generate a database contents report, retrieve data for the UAM[2], retrieve model concentration data, and generate graphics (scheduled for September 1992). The only two discussed in this document are options 1 and 3. The first choice has a very simple menu structure. You first have to decide on which contents report to generate: UAM or model concentration. The next menu is basically the same for either choice. You specify items needed to submit a batch job. An example of the database contents report generation is given in the GMISS User's Guide, Volume II: UAM Subsystem, April 1991, EPA-450/4-91-009. When the job has been submitted, control returns to the main menu.

The third menu choice, retrieve model concentration data, has more menus and more options. The contents of the GMISS database and the specifications you enter affect what menus appear on your terminal. In Figure 5-1, the shaded boxes designate optional or conditional menus that appear only under some circumstances. The data retrieval function always begins with menu 3.1, with which you can specify a domain and subdomain.

[2]For a description of UAM data retrieval, see the *Gridded Model Information Support System (GMISS) User's Guide, Volume II: UAM Subsystem*, EPA-450/4-91-009 (April 1991), U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711.

Menu 3.1.1 is available if you wish to see a list of available domains. Next is Menu 3.2 used to specify data selection criteria. If you request a list of values that you may enter, option menu 3.2.1, 3.2.2, or 3.2.3 appears and provides the information. If you enter partial selection criteria in menu 3.2--by leaving one or more fields blank--or if your criteria select more than one time period of a particular ROM simulation, then menu 3.3 appears with a list of available data that meet the criteria. If your menu 3.2 criteria uniquely define the data to retrieve, menu 3.3 is not necessary and does not appear. Menus 3.6 and 3.7 depend on your selection of batch or interactive on menu 3.5.

The rest of this chapter describes in detail each of the data retrieval menus. Menu 1.0 is for selecting the database contents report type of either concentration or UAM data. Menu 1.3 is accessed by selecting option 2 on menu 1.0 and is very similar to the batch menu 3.6 for data retrieval. Both menu 1.3 and 3.6 are described in Section 5.11.

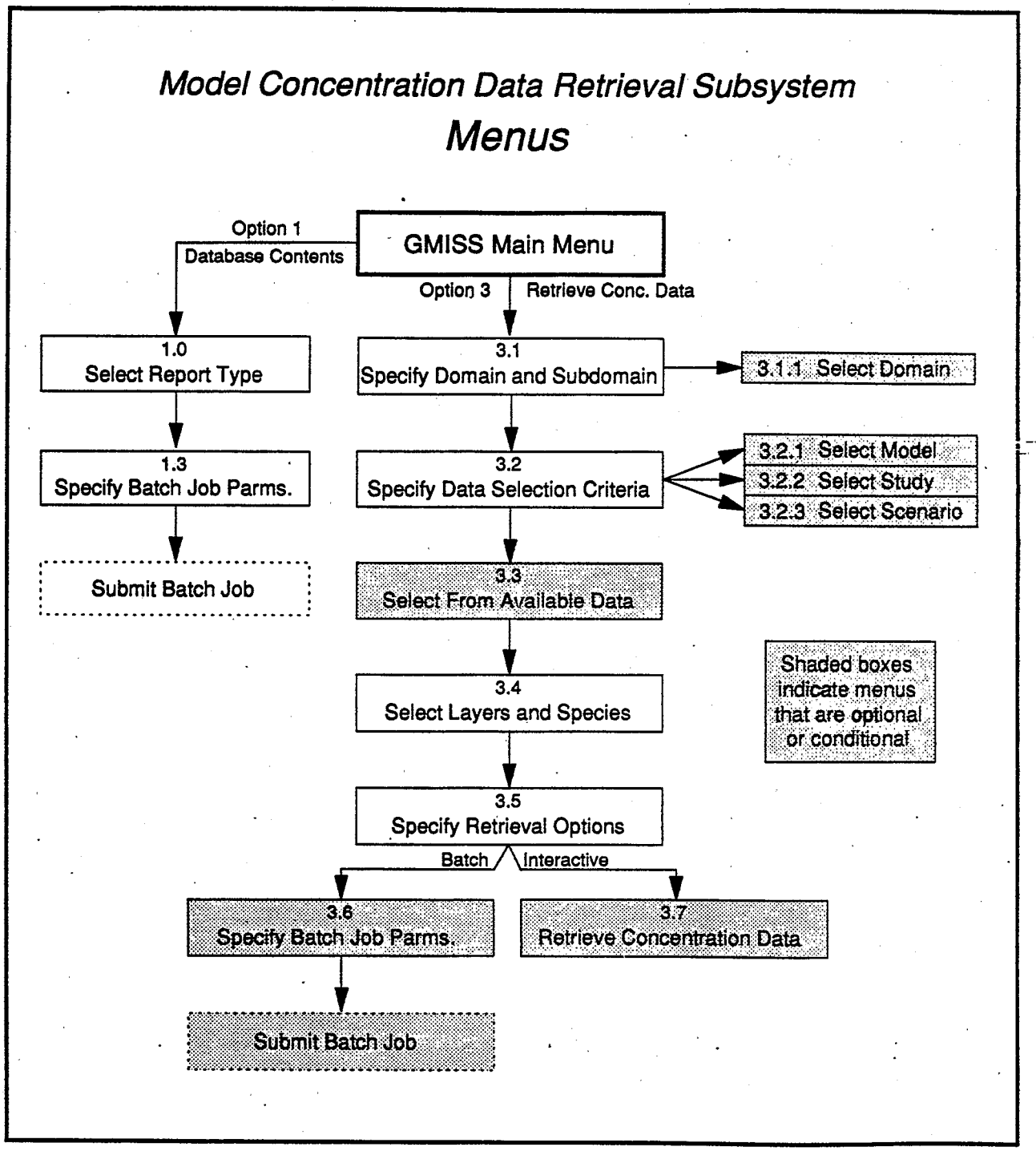

Figure 5-1. Model Concentration Data Retrieval Subsystem Menu Structure

5.2 Main Menu

The GMISS main menu (Figure 5-2) allows you to choose which function to execute. The first function, *list database contents*, produces a printed report that lists the data available for retrieval with the UAM or Model Concentration Data Retrieval Subsystem. The second function on the main menu, *retrieve data for UAM*, extracts data from the GMISS database and creates retrieval files. The third function, *retrieve model concentration data*, is discussed in this chapter. It deals with extracting data from GMISS and creating retrieval files of concentration data. The fourth function, *generate graphics*, is not yet available.

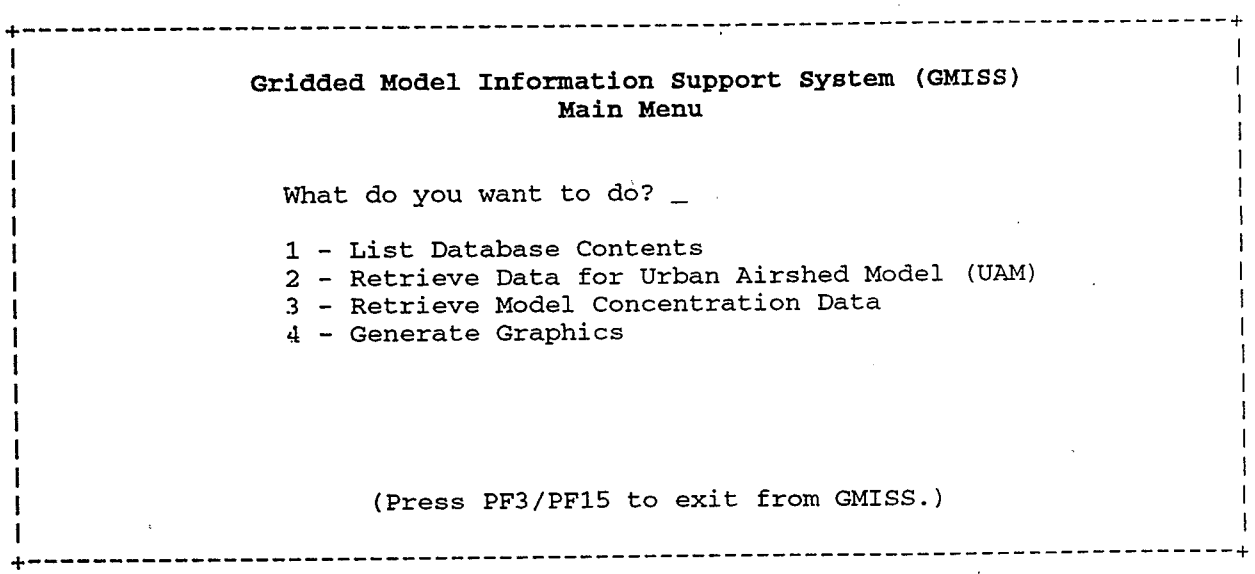

Figure 5-2. GMISS Main Menu

Instructions

To perform a function listed on the main menu, enter the number of the function in the blank after the question *What do you want to do?* and press the ENTER key of your terminal. The available functions and associated numbers are listed under the question.

To exit from the main menu without performing a function and return to TSO, press the PF3 or PF15 key of your terminal.

That is not a valid choice.

The value you entered is not one of the choices listed on the main menu. Enter one of the available choices and press the ENTER key, or exit from the menu by pressing the PF3 or PF15 key.

5.3 Menu 1.0 - List Database Contents Menu

This menu appears after the main menu, and offers two choices for printing a database contents report as seen in Figure 5-3. Option 1 selects a report for the UAM data, and option 2 selects a report for the model concentration data. Each report is inclusive. All data available to the public for retrieval for UAM or model concentration data are displayed in the report. After the report type has been selected, menu 1.3 appears for specifying batch job parameters. This menu is discussed in Section 5.11 along with menu 3.6. Section 6.2 presents an example of the contents of the model concentration data database contents report.

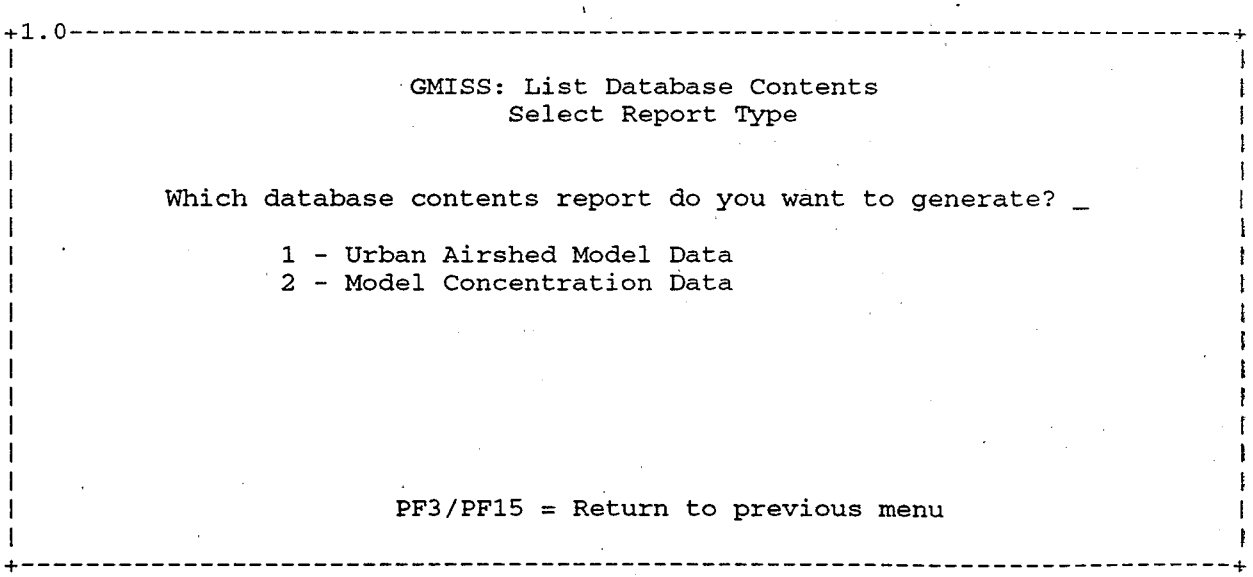

Figure 5-3. Menu 1.0 - Select Type of Database Contents Report

Instructions

To perform one of the functions listed, enter the number of the function in the blank after the question *Which database contents report do you want to generate?* and press the ENTER key of your terminal. The available functions and associated numbers are listed under the question.

To exit without performing a function and return to the main menu, press the PF3 or PF15 key of your terminal.

Error Messages

That is not a valid choice.

The value you entered is not one of the choices listed on the main menu. Enter one of the available choices and press the ENTER key, or exit from the menu by pressing the PF3 or PF15 key.

5.4 Menu 3.1 - Specify Domain and Subdomain

Model Concentration Data Subsystem, Menu 3.1, allows a user to specify the modeling domain for which to retrieve data, and to define a subdomain. This menu is first because only one domain is allowed; all the retrieved data must pertain to the same domain. Figure 5-4 shows menu 3.1 as it appears the first time a user invokes it. The instructions near the top of the screen explain that you need to supply the name of the desired modeling domain or enter a '?' for a list of valid domain names. If the user enters a '?', menu 3.1.1 will appear next and is described in the next section. Figure 5-5 shows how menu 3.1 will appear after the user has entered a valid domain name or selected one using subordinate menu 3.1.1. Now the screen shows the boundaries of the selected domain and has additional fields for defining a subdomain.

To specify a subdomain, a user defines the locations of its 4 sides by entering either column and row numbers (in the modeling grid defined for the domain), or longitude and latitude values. The first *columns* field (on the left) corresponds to the first pair of *longitude* fields (degrees and minutes); they define the western boundary of the subdomain.

Similarly, the second *columns* field and the second pair of *longitude* fields define the eastern subdomain boundary, and the sets of *rows* and *latitude* fields define the southern and northern subdomain boundaries. Either type of "coordinate" may be used for any boundary. For example, the western boundary could be specified in terms of column number and the eastern boundary in terms of longitude degrees and minutes. If a user specifies both column-row and longitude-latitude values for the same boundary, the column-row value takes precedence. If a user leaves blank both the column-row and longitude-latitude fields for a particular subdomain boundary, the domain boundary is used. Thus, leaving blank *all* the subdomain fields (or erasing values from all of them) selects the entire domain. If only the degrees field of a degrees-minutes pair has a value, the minutes (blank) field is interpreted as zero; both degrees and minutes must be blank to signify "no value".

Menu 3.1 saves the coordinates you enter, and it "remembers" them the next time you use it. The coordinates you entered the previous time are the initial values on the menu. If you want to use the same coordinates again, you do not have to re-enter them.

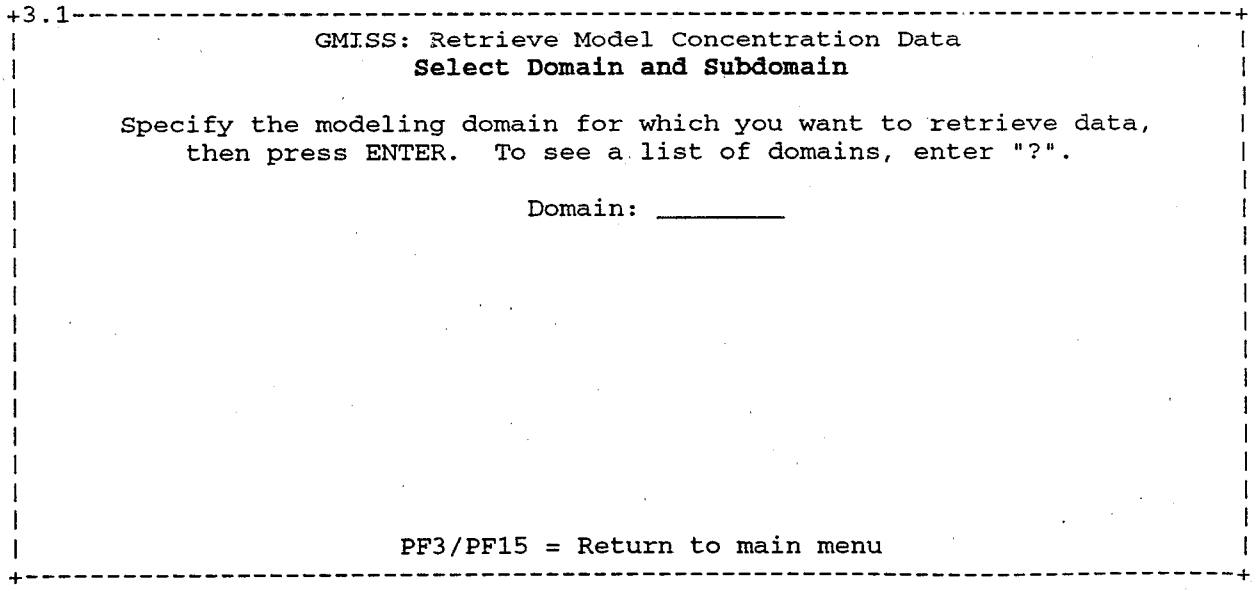

Figure 5-4. Menu 3.1 - Appearance Upon Initial Use

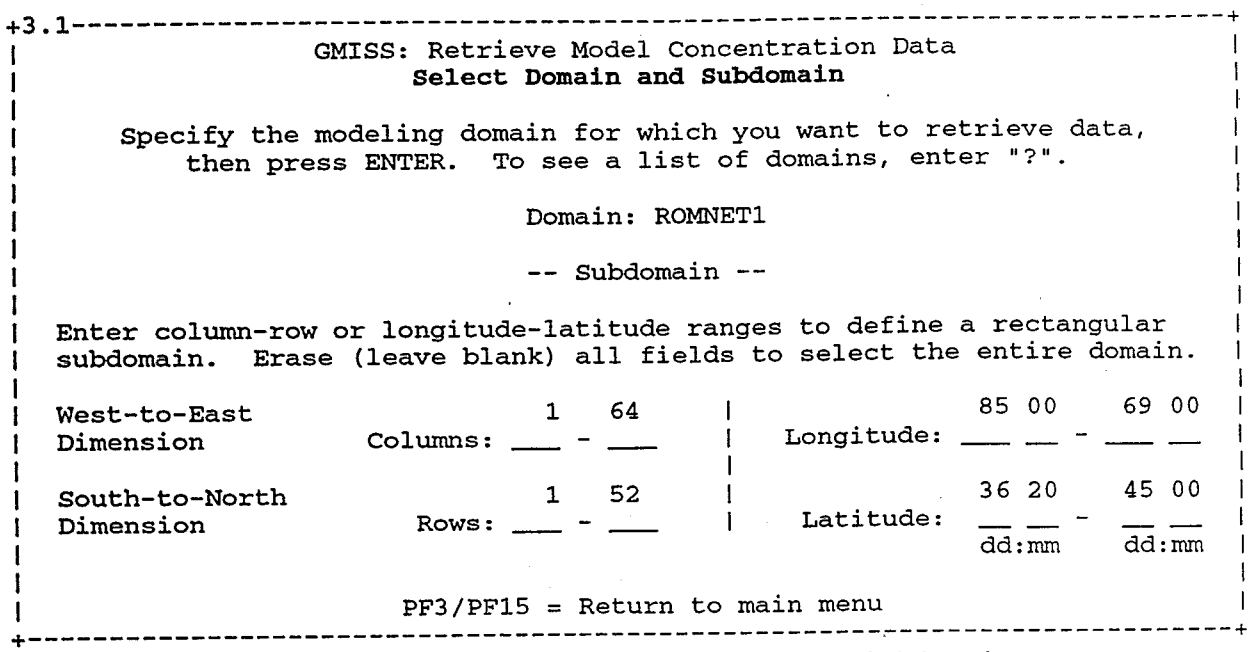

Figure 5-5. Menu 3.1 - Specify Domain and Subdomain

Instructions

Enter a valid domain name and press the ENTER key or type a "?" in column one of the *domain* field to choose from a list of valid domains on menu 3.1.1. When you modify the domain field, the domain boundaries on the bottom half of the screen will change accordingly. Once you have selected your domain, you may enter values to define your subdomain. The following combination of values are available:

1) Blank out all subdomain fields to retrieve the entire domain.
2) Fill in the minimum and maximum row and column fields for your subdomain and the longitude and latitude will be calculated for you. If there are any previous values in the longitude and latitude fields, they will be written over.
3) Fill in the minimum and maximum longitude and latitude fields for your subdomain while leaving the row and column fields *blank*. The menu program will calculate rows and columns based on the values you entered. If the row or column fields contain any non-blank values, they will take precedence and recalculate the longitude and latitude fields regardless of any values you may have placed there.

4) Mix and match--you have the option of using any combination of the three items above. You must keep in mind that the first column field is associated with the first longitude field, the second column field is associated with the second longitude field, and the same associations go for the row and latitude fields.

To return to the previous menu without specifying subdomain coordinates, press the PF3 or PF15 key of your terminal.

Error Messages

Invalid domain. Correct it or enter '?' for a list.

The value in the *domain* field does not match the name of any domain for which there is concentration data in the GMISS database. Correct the domain name or enter '?' and press the ENTER key.

Enter a domain name or '?' for a list of valid names.

The *domain* field was blank when the user pressed ENTER. A *domain* value is required. Type '?' or a valid domain name in the domain field and press the ENTER key.

Invalid COLUMN. The value must be numeric.
Invalid ROW. The value must be numeric.
Invalid LONGITUDE. The value must be numeric.
Invalid LATITUDE. The value must be numeric.

A subdomain field value is not blank or an integer. The position of the cursor indicates the particular field to which the message applies. Change the field and press the ENTER key.

Minutes of longitude must be 0-59.
Minutes of latitude must be 0-59.

There are 60 minutes of longitude or latitude per degree and the minute field can have values 0 through 59. (A value of 60 minutes would be equivalent to the next higher degree and zero minutes) Change the minutes field and press the ENTER key.

Allowed columns are *min* - *max*.

Allowed rows are *min* - *max*.

Allowed longitudes are *dd:mm* - *dd:mm* (deg:min).

Allowed latitudes are *dd:mm* - *dd:mm* (deg:min).

A subdomain coordinate has a value outside the bounds of the domain you selected. Change the coordinate to be within the bounds listed in the error message, and press the ENTER key.

Column values exchanged. Press ENTER to accept.

Row values exchanged. Press ENTER to accept.

Longitude values exchanged. Press ENTER to accept.

Latitude values exchanged. Press ENTER to accept.

The coordinates defining opposite sides of the subdomain have been exchanged so they "make sense". Menu 3.1 has rearranged the coordinates to do that, and is asking you to confirm that the rearranged coordinates correctly define the subdomain. If the coordinates are correct, press the ENTER key to accept them. The column, row and latitude values on the left must be less than their counterpart on the right. The longitude value on the left is always greater than the one on the right.

5.5 Menu 3.1.1 - Select Domain from list

Menu 3.1.1 is an optional menu; it appears if a user enters "?" in the *domain* field of menu 3.1. The purpose of this menu is to display a list of modeling domains for which concentration data are available for retrieval, and to allow a user to select one of them.

The bottom portion of menu 3.1.1, below the "domain" and "description" column headings, is a scrollable list of domain names and descriptions. The domain names listed at the left side of Figure 5-6 are the values a user may select. The domain descriptions include the number of columns and rows in the modeling grid, the longitude and latitude coordinates of its southwest corner, and the names of models (or model versions) for which concentration data exist in the GMISS database. This information is there to "help" you make a decision as to which domain to select.

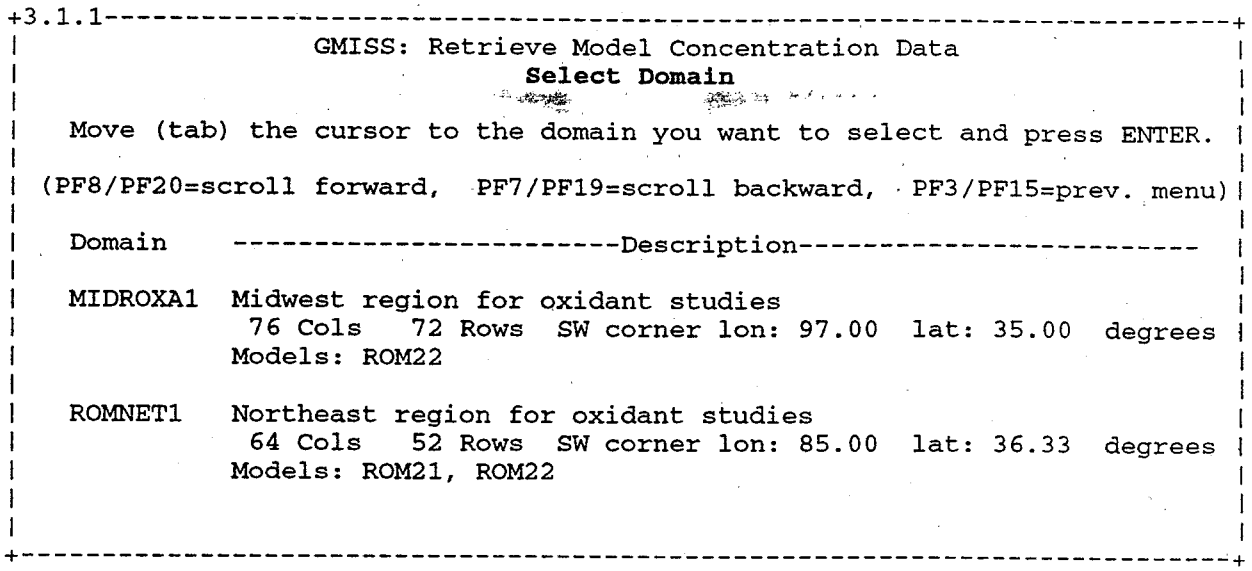

Figure 5-6. Menu 3.1.1 - Domain Selection Menu

Instructions

Examine the list of values displayed, scrolling the list if necessary, until you find the value you want to select. Press the TAB key of your terminal until the cursor is at that value, then press the ENTER key. This selects the value and returns you to menu 3.1, with the selected value entered in the appropriate field.

If you do not want to select a value from the list, press the PF3 or PF15 key. Menu 3.1 reappears, and the domain field has the same value it did before you invoked menu 3.1.1.

Error Messages

Press PF3/15 to return to the previous menu

This message occurs only if some unusual condition prevents the menu from working as it should. Some information about the error condition may appear on the menu where the second title line normally is. Record the information, press the PF3 or PF15 key of your terminal until you have exited from GMISS, and contact your EPA regional office in charge of GMISS.

5.6 Menu 3.2 - Specify Data Selection Criteria

Model Concentration Data Retrieval Subsystem menu 3.2, Figure 5-7, is the primary menu for specifying data retrieval selection criteria. The menu has six fields:

Model	Version of the ROM used for simulation of air pollution
Domain	Geographic area of the ROM simulation (determined by menu 3.1)
Study	Group of ROM simulations having the same purpose, funding, etc.
Scenario	A specific ROM simulation, designed to show a particular effect
First date	First date in the ROM simulation to retrieve data for
Last date	Last date in the ROM simulation to retrieve data for

The values entered in these fields must match values of ROM data in the GMISS database. If all the available data have a single value for one of these fields, that value is automatically filled in by the menu program and you cannot alter the value. Otherwise, you can enter a new value or change an existing value. For example, suppose all the available data are derived from simulations using ROM version 2.1 in the ROMNET1 domain. The *model* field would contain "ROM21" and the *domain* field would contain "ROMNET1". Both fields would be protected and you would not be able to alter those values. Figure 5-8 shows how menu 3.2 would look under these conditions.

You have the option of leaving blank any of the unprotected fields of menu 3.2. Leaving a field blank means "Don't apply any selection criteria with respect to this field. On the next menu, show me all the possible values of this field for data that match the selection criteria in other fields." You do not have to precede a blank field with filled-in fields. For example, if you specified a value for *scenario* but left the *model* and *study* fields blank, the menu program would find all the combinations of model, domain, and study in the database that have the scenario you entered. Entering a value for *first date* but leaving *last date* blank means "find all available dates on or after *first date*"; entering a value for *last date* but leaving *first date* blank means "find all available dates on or before *last date*".

If you do not know what value to enter in the *model*, *study*, or *scenario field*, you can see a list of valid values by typing a question mark in the first position of the field and pressing the ENTER key. This invokes one of the "list-of-values" screens described in the next section. These screens list the values you can enter in menu 3.2 and gives a brief explanation of what each value means.

Please note that making changes to any field may affect other values present on the screen. If, for example, a number of studies and scenarios are selected, changing the studies could alter those scenarios. All three fields (*model*, *study*, and *scenario*) are dependent on the fields above them. If you were to drop a study from your list, then all scenarios connected with that study would be dropped and the scenario field on menu 3.2 would change. If you have any questions about the values, enter a "?" to see a list-of-values menu which will have your choices highlighted.

The values you enter on menu 3.2 are saved. Each time you use the Model Concentration Data Retrieval Subsystem, the initial values of menu 3.2 fields are the values you specified the previous time.

```
+3.2-------------------------------------------------------------------------+
|                  GMISS: Retrieve Model Concentration Data                  |
|                      Specify Data Selection Criteria                       |
|                                                                            |
|  Enter values that define the data you want to retrieve, and press ENTER.  |
|  If you cannot tab to Model, Study, or Scenario, only the value displayed  |
|  is available. "*" in these fields means multiple values were specified;   |
|  enter "?" to see a list of available and selected values. Leave a field   |
|  blank to select all possible values, and the next screen will list them.  |
|                                                                            |
|                                Domain: ROMNET1                             |
|                                                                            |
|                                 Model: _________                           |
|                                 Study: _________                           |
|                              Scenario: _________                           |
|                 First Date to Retrieve: _________ (mm/dd/yy)               |
|                  Last Date to Retrieve: _________ (mm/dd/yy)               |
|                                                                            |
|                                                                            |
|                        PF3/PF15 = Return to previous menu                  |
+----------------------------------------------------------------------------+
```

Figure 5-7. Menu 3.2 - Specify Data Selection Criteria

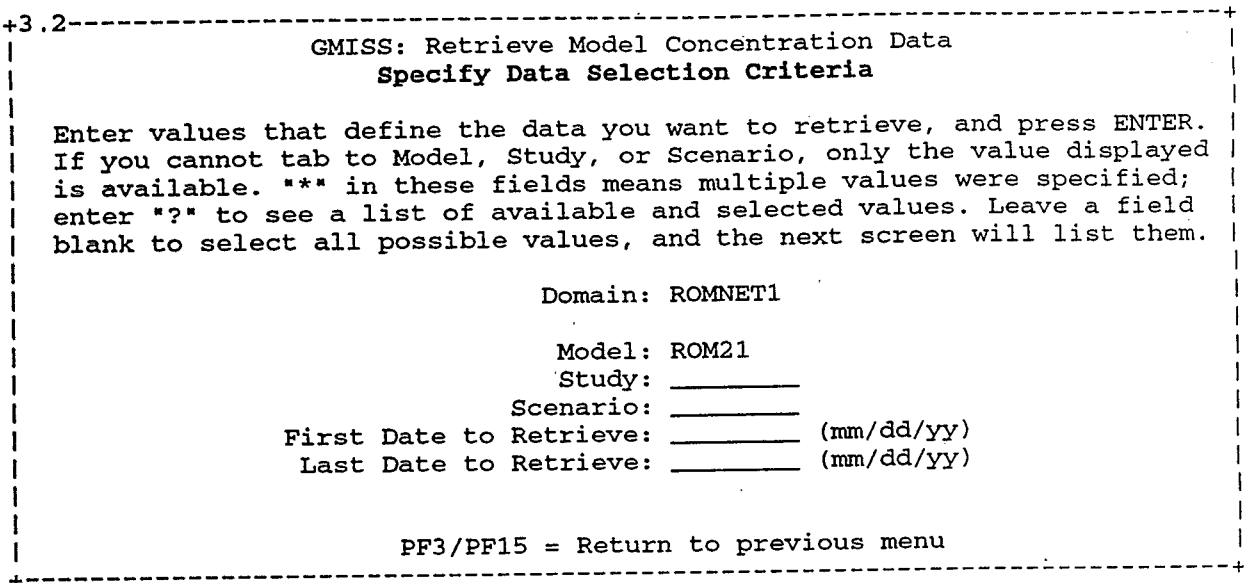

Figure 5-8. Appearance of Menu 3.2 When Some Fields Have Been Filled In

Instructions

Enter values in unprotected fields to define the simulation and date range you want to retrieve. (An *unprotected* field is one at which the cursor stops when you use the terminal's TAB key. The cursor skips over *protected* fields.) If you wish, you may leave any or all unprotected fields blank, or erase their initial values. In that case, menu 3.3 will show you the combinations of model, domain, study, scenario, and date values in the GMISS database that match the menu 3.2 fields that do have values.

To see a list of the available values for an unprotected *model*, *study*, or *scenario* field, type a question mark in the first position of the field (you need not erase any value already in the field), and press the ENTER key. Another menu will appear that lists and describes the values you can specify, and lets you choose one or more. The next section of this chapter describes the list-of-values menus for these three fields.

If you would like to see available dates, leave the fields blank and menu 3.3 will display all combinations and date ranges for the selected criteria. (A database contents report, option 1 of the GMISS main menu, lists the dates available for each scenario also.) You can specify both the beginning and end of the date range, only the beginning, only the end, or not specify a date range at all.

To return to the main menu without specifying selection criteria, press the PF3 or PF15 key at your terminal.

Error Messages

Invalid model. Correct it or enter '?' for a list.
Invalid study. Correct it or enter '?' for a list.
Invalid scenario. Correct it or enter '?' for a list.

The value you entered for the field named in the message does not match any of the values available in the GMISS database. To correct the error, enter a different value, enter a question mark and pick a valid value from the list displayed by menu 3.2.x, or erase the field and choose values that appear on menu 3.3 after you press the ENTER key.

Invalid combination of model, study, and scenario values.

Although the three fields individually have valid values, the combination of values is not correct. That is, no data in the GMISS database have the combination of values you specified. Only non-blank fields are significant in this comparison. Enter a different value, enter a question mark to get a list of available values, or erase a value. The value you entered for *scenario* is most likely to cause this error. You might try erasing that field and choosing a scenario from the list displayed by menu 3.3.

Invalid date. Use the format mm/dd/yy.

The value you entered for *first date* or *last date* is not a valid date. You must specify all three parts of the date as numbers in the order month, day and year. You may separate the three parts with slashes (/), dashes (-), or spaces. Month can be 1 through 12. Day can be 1 through the number of days in the month. Year values of 50 through 99 represent the years 1950 through 1999, and values of 0 through 49 represent the years 2000 through 2049. You do not have to use a leading zero in a value less than ten. Leading and trailing blanks in the values are ignored.

Available dates are mm/dd/yy through mm/dd/yy.

The date you specified for *first date* or *last date* does not fall within the valid range of dates, listed in the error message, for any ROM simulation selected by the *model*, *study*, or *scenario* values. Change the faulty date to be within the time period listed in the error message and press the ENTER key.

Dates exchanged. Press ENTER to accept.

The value of *first date* is later than the value of *last date*. The two date values have been swapped so that *first date* precedes *last date*. Either press the ENTER key to accept or change the date values.

Model(s) are not valid for selected domain.

Study(s) are not valid for selected model(s).

Scenario(s) are not valid for selected model(s) or study(s).

This message occurs if, for example, some models are selected and one study is chosen. You then go back and select different models so that the study then becomes invalid. The message *Study(s) are not valid for selected model(s).* would appear on the screen. You have the option to blank out the *study* field or enter '?' to see valid studies to choose from in order to continue.

No data for specified date range. Press ENTER to see available dates.

You picked days that fall within the valid date range but there are no data available on the days you selected. Press ENTER to proceed to menu 3.3 to see a list of available dates you may choose from. See Section 5.8 for instructions on how to use menu 3.3.

Press PF3/15 to return to the previous menu

This message occurs only if some unusual condition prevents the menu from working as it should. Some information about the error condition may appear on the menu where the second title line normally is. Record the information, press the PF3 or PF15 key of your terminal until you have exited from GMISS, and contact your EPA regional office in charge of GMISS.

5.7 Menu 3.2.1 Through 3.2.3 - Lists of Values

Three similar menus, 3.2.1 through 3.2.3, provide lists of valid values for the *model*, *study*, and *scenario* fields on menu 3.2. A list-of-values menu appears when you enter a question mark in the corresponding field of menu 3.2. The three menus, shown in Figure 5-9 through Figure 5-11, have essentially the same format. The bottom half of the screen shows the list of values. The name or code that you could enter on menu 3.2 is at the left side of the screen under their corresponding headings. Beside the name is a description of what it means. If the list has more entries than will fit on the screen, you can scroll the list to see all the values. Attempting to scroll forward at the end of the list causes the message "NOTE: At bottom." to appear; attempting to scroll backward at the start of the list generates the message "NOTE: At top." The *Using Menus* section of Chapter 3 describes scrolling and tells what terminal keys to use.

The values listed by these three menus take into account the values entered in other fields on menu 3.2. For example, if there are values for *model* and *domain*, the list-of-values menu for *study* shows only the study names valid for that model and domain.

The three list-of-values menus do more than just list the valid values; they also let you select one or more values from the list. If you only select one, the value will appear in the appropriate field of menu 3.2, so you do not have to remember the value and enter it yourself. If you pick multiple selections, what appears on menu 3.2 in the appropriate field is a '*' in column one and the total number of selected items starting in column 3. For example, if you had selected five scenarios on menu 3.2.3, the scenario field on menu 3.2 would contain '* 5' showing that five scenarios have been selected. In order to see which scenarios were selected, you would have to return to menu 3.2.3 by entering a '?' in the scenario field on menu 3.2. The selected ones will be highlighted and have a 'S' beside them.

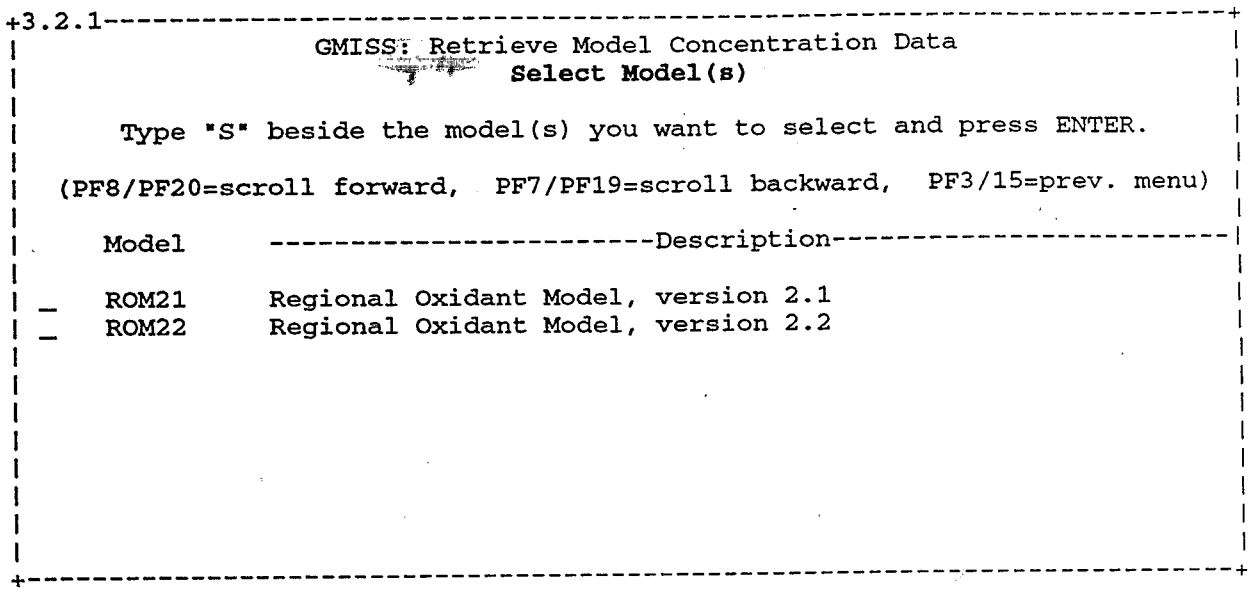

Figure 5-9. Menu 3.2.1 - Select Model(s)

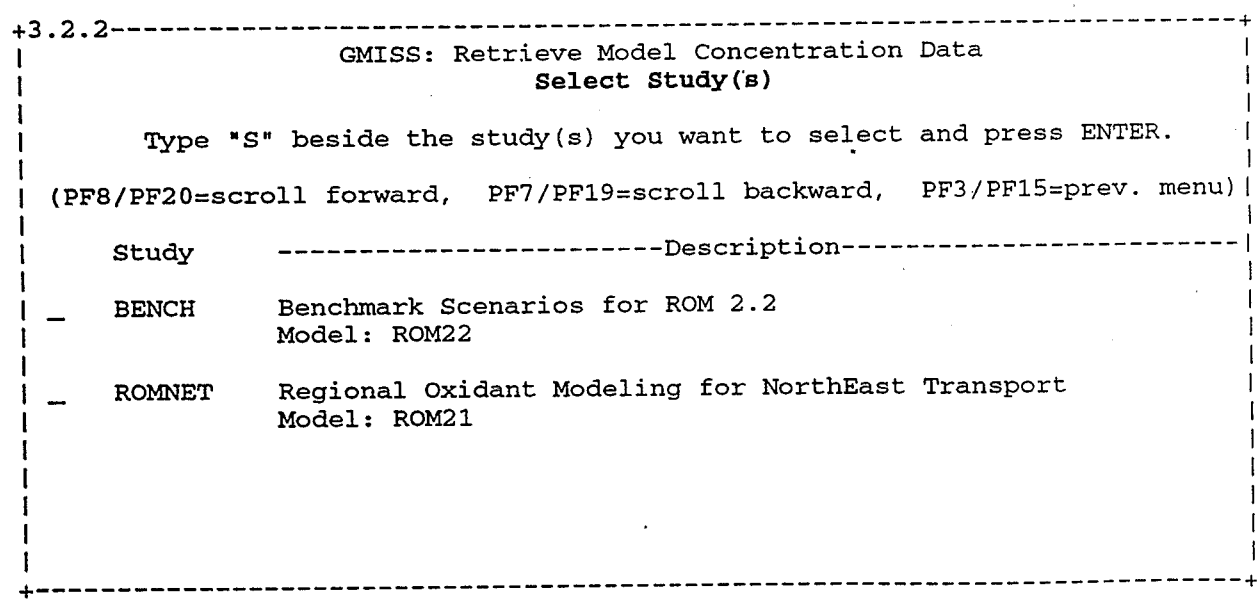

Figure 5-10. Menu 3.2.2 - Select Study(s)

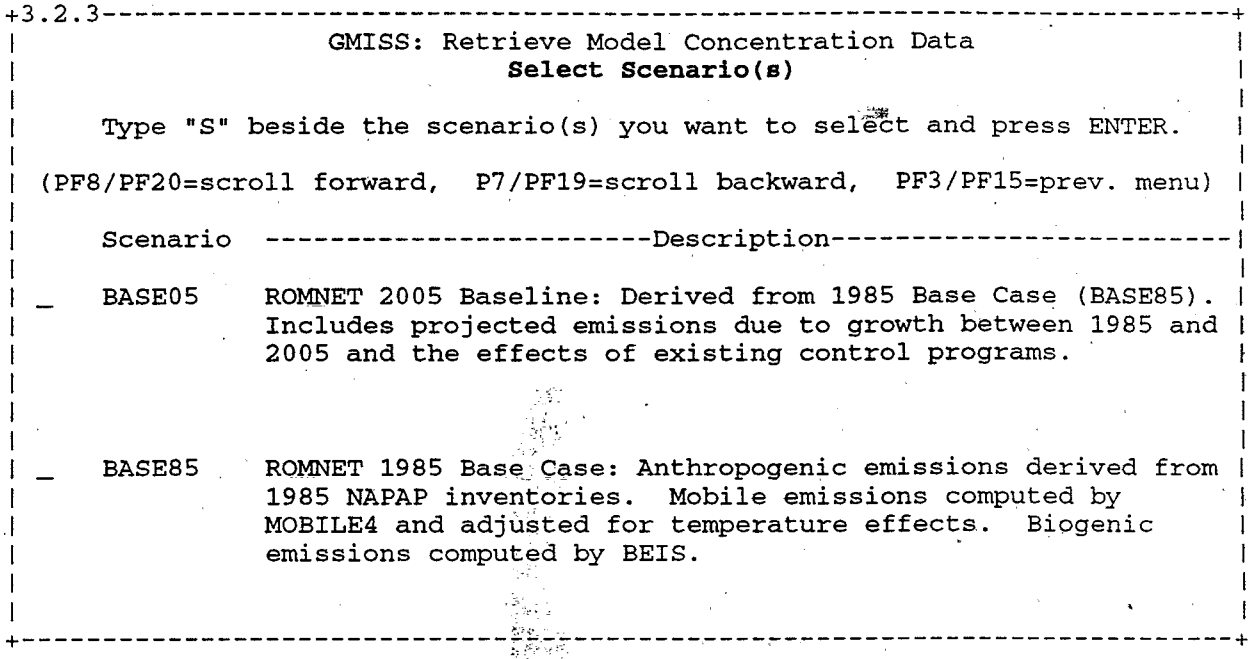

Figure 5-11. Menu 3.2.3 - Select Scenario(s)

Instructions

Examine the list of values displayed, scrolling the list if necessary, until you find the value or values you want to select. Press the TAB key of your terminal until the cursor is at the value and type 'S' on the blank next to it. You can select any number of items in the list, but selecting all items or no items defines the same selection criteria. A message displays how many have been selected as you scroll through the list. Press the ENTER key to return to menu 3.2, with the selected value entered in the appropriate field.

If you do not want to select a value from the list, press the PF3 or PF15 key. Menu 3.2 reappears, and the field corresponding to the list-of-values menu has the same value it did before you invoked the list-of-value menu.

Error Messages

Press PF3/15 to return to the previous menu

This message occurs only if some unusual condition prevents the menu from working as it should. Some information about the error condition may appear on

the menu where the second title line normally is. Record the information, press the PF3 or PF15 key of your terminal until you have exited from GMISS, and contact your EPA regional office in charge of GMISS.

 # currently selected

This is not an error but an indicator of how many selections have been made. As you scroll through the list, it increases or decreases as you select and deselect values.

5.8 Menu 3.3 - Select From Available Data

Menu 3.3 is a conditional menu; it appears if any field of menu 3.2 is left blank or if any fields contain multiple values. The purpose of this menu is to show you which ROM simulations and date ranges meet the selection criteria you specified on menu 3.2, and to let you choose the ones you need. In addition, you may alter the date range.

Figure 5-12 shows the format of menu 3.3. The bottom portion of the screen lists available ROM simulations. Each line of the list is a contiguous series of days of a simulation. The simulations are listed in alphabetical order by *model*, *domain*, *study*, and *scenario* names. If a particular simulation was run for several different time periods, there is a line in the list for each one; Figure 5-12 illustrates this for BASE05 and BASE85 scenarios. If the list has more entries than will fit on the screen, you can scroll the list to see all the lines. As you scroll through the list, a message will inform you of how many have been selected so far. The *Using Menus* section of Chapter 3 describes scrolling and tells what terminal keys to use.

```
+3.3-------------------------------------------------------------------+
|              GMISS: Retrieve Data For Concentration Data             |
|                      Select From Available Data                      |
|                          Domain: ROMNET1                             |
| Available data matching your initial selection criteria are listed below.|
| Type "S" beside each entry(s) you want to retrieve; change the date range|
| if you wish.  Press ENTER to accept the selected entry(s) and continue.  |
|                                                                       |
| (PF8/PF20=scroll forward,  PF7/PF19=scroll backward,  PF3/PF15=prev. menu)|
|                                                                       |
|  SELECT   Dates Available      Scenario     Study        Model        |
|                                                                       |
|     _   06/10/83 - 06/20/83    BASE05       ROMNET       ROM21        |
|     _   07/04/88 - 07/17/88    BASE05       ROMNET       ROM21        |
|     _   07/09/85 - 07/22/85    BASE85       ROMNET       ROM21        |
|     _   08/09/85 - 08/16/85    BASE85       ROMNET       ROM21        |
|     _   07/04/88 - 07/17/88    BASE85       ROMNET       ROM21        |
|     _   07/04/88 - 07/17/88    CS01         ROMNET       ROM21        |
|     _   07/04/88 - 07/17/88    CS02         ROMNET       ROM21        |
|     _   07/04/88 - 07/17/88    CS03         ROMNET       ROM21        |
|     _   07/04/88 - 07/17/88    CS05         ROMNET       ROM21        |
+-------------------------------------------------------------------+
```

Figure 5-12. Menu 3.3 - Select From Available Data

There are three fields in each line of the list of ROM simulations that you can change. Use the first one, labeled "SELECT", to select an entry from the list. Use the next two fields, labeled "Dates Available", to specify the first and last dates for which you want to retrieve data. For each entry in the list of ROM simulations, the beginning date is the later of the *first date* value you entered on menu 3.2 or the first available date of the simulation. The ending date for each entry is the earlier of the *last date* value you entered on menu 3.2 or the last date of the simulation. You can change the beginning date, the ending date, or both of them.

Instructions

Examine the list of simulations and dates displayed, scrolling the list if necessary. Press the TAB key of your terminal until the cursor is at the *select* field of the line containing the simulation and date range you have chosen to retrieve. Type an *S* in the *select* field to indicate your choice. (You may use any character except blank or underline to indicate selection; it does not have to be *S*.) If you want to change the beginning date of the date to be retrieved, type over the value listed on the screen. Follow the same procedure for the ending date. The rules for specifying dates are the same as for menu 3.2 (enter month, day, and year as numbers separated by slashes

(/), dashes (-), or spaces). You may repeat this process until all simulations you want are selected. Press the ENTER key to confirm the selection(s) you have made and to proceed to the next menu.

If you do not want to select an entry from the list, press the PF3 or PF15 key. Menu 3.2 reappears with the selection criteria you specified. You may then change the criteria and press ENTER to proceed again to menu 3.3, or press the PF4 or PF16 key to return to the GMISS main menu.

Error Messages

Select at least one entry in the list.

At least one simulation (list entry) must be selected. Type a *S* in the select field of the simulation(s) you want to select and press the ENTER key.

Invalid date. Use the format mm/dd/yy.

The value you entered for beginning or ending date is not valid. You must specify all three parts of the date as numbers in the order month, day, and year. You may separate the three parts with slashes (/), dashes (-), or spaces. Month can be 1 through 12. Day can be 1 through the number of day in the month. Year values of 50 through 99 represent the years 1950 through 1999, and values of 0 through 49 represent the years 2000 through 2049. You do not have to use a leading zero in a value less that ten. Leading and trailing blanks in a value are ignored.

Available dates are mm/dd/yy through mm/dd/yy.

A date you specified does not fall within the valid range of dates, listed in the error message, for the beginning or ending date of the selected ROM simulation. Change the faulty date so it is within the time period listed in the error message and press the ENTER key.

Invalid date range.

The dates in the *dates available* column are in the wrong order--start date is later than end date. Change the dates such that start date precedes last date and press the ENTER key.

Press PF3/15 to return to the previous menu

This message occurs only if some unusual condition prevents the menu from working as it should. Some information about the error condition may appear on the menu where the second title line normally is. Record the information, press the PF3 or PF15 key of your terminal until you have exited from GMISS, and contact your EPA regional office.

5.9 Menu 3.4 - Select Layers and Species

With menu 3.4, you specify which chemical species and model layers for the concentration data you want to retrieve. Figure 5-13 shows the format of menu 3.4, which lists all layers and species associated with the model(s) you selected on preceding menus 3.2 and/or 3.3. The first time you use this menu, there will be no values selected. Thereafter, the screen will reflect the values you selected the previous time, because menu 3.4 saves and "remembers" your selection criteria. Any previous selections that do not satisfy the current selection criteria for domain, model, study, scenario, and date are ignored, since their names are not in the lists.

The names in each list are in ascending order left to right and top to bottom--the same pattern the cursor follows when a user presses the TAB key. The "....." fields indicate unused positions in the lists and are protected fields. If multiple simulations were selected previously, the retrieval file does not necessarily have the same set of layers and species for every simulation. The ones present on the menu constitute all layers and species for all the models you have selected.

```
+3.4-------------------------------------------------------------------+
|                  GMISS: Retrieve Model Concentration Data            |
|                         Select Layers and Species                    |
|                                                                      |
|          Type "S" beside the model layers and chemical species       |
|                you want to select, and press ENTER.                  |
|                                                                      |
|  Layers:                                                             |
|  _ 1            _ 2            _ 3                                   |
|                                                                      |
|  Species:                                                            |
|  _ ALD2         _ CO           _ C2O3         _ ETH          _ FORM  |
|  _ HNO2         _ HNO3         _ HO2          _ H2O2         _ ISOP  |
|  _ MTHL         _ NO           _ NONR         _ NO2          _ NO3   |
|  _ N2O5         _ OH           _ OLE          _ O3           _ PAN   |
|  _ PAR          _ TOL          _ TRAC         _ XO2          _ XYL   |
|  _ ........     _ ........     _ ........     _ ........     _ ........|
|  _ ........     _ ........     _ ........     _ ........     _ ........|
|  _ ........     _ ........     _ ........     _ ........     _ ........|
|                      PF3/PF15 = Return to previous menu               |
+----------------------------------------------------------------------+
```

Figure 5-13. Menu 3.4 - Select Layers and Species

Instructions

Type an *S* (or any other character but blank or underline) in the blank beside each layer or species you wish to retrieve from the GMISS database. Leave blank or erase the field beside each layer or species data you do not want to retrieve. You must select at least one species and one layer, but no more than three layers or thirty species. Press the ENTER key to accept the selections you have made and to proceed to the next menu in the data retrieval function.

To return to the previous menu without selecting any species or layers, press the PF3 or PF15 key on your terminal.

Error Messages

Select at least one layer.

Select at least one species.

You must select at least one of each, even if the list has but one value. After selecting the species and layers you want, press the ENTER key to continue.

 # layers selected, only 3 allowed.

 # species selected, only 30 allowed.

You selected more than the maximum number of layers and species allowed. You must deselect enough of each to reduce the number selected to (or below) the limit given in the error message. Press the ENTER key to continue..

Press PF3/15 to return to the previous menu

This message occurs only if some unusual condition prevents the menu from working as it should. Some information about the error condition may appear on the menu where the second title line normally is. Record the information, press the PF3 or PF15 key of your terminal until you have exited from GMISS, and contact your EPA regional office.

5.10 Menu 3.5 - Specify Retrieval Options

This is the last compulsory menu of the Model Concentration Data Retrieval Subsystem. Its purpose is to allow a user to specify the name of the retrieval file to be created and options that determine how the data retrieval takes place. Figure 5-14 shows the format of menu 3.5. The user needs to enter values for three fields: operating mode, retrieval file type, and retrieval file name.

The *data retrieval mode* field specifies whether data retrieval takes place in a batch job or "interactively" (during the user's terminal session). If you choose *B* for a batch job, menu 3.6 will appear for you to specify batch job parameters. If *I* is chosen, a message will appear informing you to wait until the retrieval has taken place and then you will be returned to GMISS main menu.

The *retrieval file type* field specifies the format of the retrieval file to be created. The value *S* specifies SAS format and the value *Q* specifies a sequential format. Section 6.1 describes these different file types.

The *retrieval file name* field may be used to specify the IBM dataset name of the retrieval file to be created. If you leave this field blank, the retrieval file will have the default dataset name shown on menu 3.5 below the *retrieval file name* field. This default

file name is based on the date and time when you use the menu. If you enter a value for *retrieval file name*, it overrides the default. There is only minimal error checking on that field, so its your responsibility to specify a valid IBM dataset name. **You may enter an existing, catalogued dataset or a new one, but if the dataset already exists, the retrieval function deletes that dataset and catalogues a new one with the same name.**

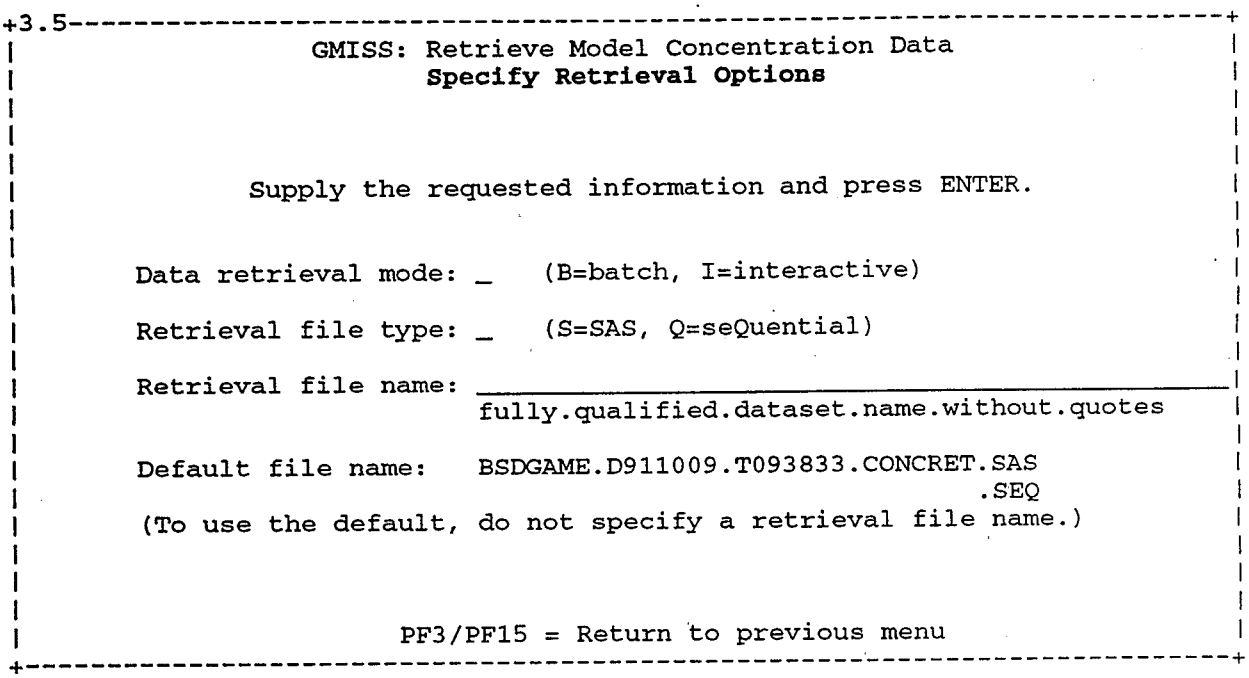

Figure 5-14. Menu 3.5 - Specify Retrieval Options

Instructions

Type *B* to indicate a batch job or *I* for an interactive session in the blank next to *data retrieval mode.* Type *S* for a SAS dataset or *Q* for a sequential format in the blank next to *retrieval file type.* These are the only two fields which must be filled in on menu 3.5.

If you want to enter a file name other than the default, move the cursor to the line beside the *retrieval file name* and type the name you wish to use. Be sure the new name is valid for EPA's IBM computer system. If you specify an invalid name, the batch job that retrieves data will not run. It is not necessary to type upper-case characters in the name; menu 3.5 converts entries to upper case automatically.

Press the ENTER key to accept your selections. To return to the previous menu, press the PF3 or PF15 key of your terminal.

Error Messages

Retrieval mode may not be blank.

File type may not be blank.

Both the *data retrieval mode* and the *retrieval file type* field must have values. Enter a value in both fields and press the ENTER key to continue if all your selections have been made.

Invalid retrieval mode. Enter 'B' (batch) or 'I' (interactive).

The only valid values to enter in the *data retrieval mode* are listed in the error message. Correct the field to one of the those and press the ENTER key to continue.

Invalid file type. Enter 'S' (SAS) or 'Q' (sequential).

The only valid values to enter in the *retrieval file type* are listed in the error message. Correct the field to one of the those and press the ENTER key to continue.

Specified retrieval file exists. Press ENTER to confirm.

If *retrieval file name* refers to an existing dataset, you can do one of the following: press the ENTER key to accept the file name as is, specify a different value and press ENTER, or exit from this menu by pressing PF3/PF15. If you accept the file name, the old dataset will be deleted and a new one with the same name will be catalogued.

Invalid file name <reason>

The value entered for *retrieval file name* is invalid for the reason given in the message. <reason> may be any of the following:

PDS(member) not allowed.

The name of a partitioned dataset(PDS) is valid, but not a member in the PDS. The menu program found a parenthesis in the value specified. Correct the dataset name and press the ENTER key to continue.

At least two.qualifiers are required.

A valid dataset name must have at least two qualifiers: a user's prefix (user-ID + account) or account, plus one additional qualifier, with a period separating them. There was no period found in the dataset name you entered. You may either correct or blank out the field and accept the default.

This character not allowed: <character>

The only valid characters to use in a dataset name are letters (A-Z), digits (0-9), "@", "$", and period. The message includes the invalid character. Correct it and press the ENTER key.

5.11 Menu 3.6 and 1.3 - Specify Batch Job Parameters

Menu 3.6 (Figure 5-15) is the last menu in the Model Concentration Data Retrieval Subsystem if batch mode was selected on menu 3.5. Menu 1.3 (Figure 5-16) is displayed if *List Database Contents* was chosen on the GMISS main menu and option 2 was selected on *Select Report Type* menu 1.0 described in Section 5.3. Both menu 3.6 and 1.3 are identical in appearance (except for the function title), and they serve the same purpose: they get the information needed to submit a batch job that will retrieve data or generate a database contents report. The menu programs use the values you enter (or the default values they supply) to generate job control language (JCL) statements that control the execution priority of the batch job and the disposition of its printed output. The batch job information on the two menus consists of these fields:

Job name	Identifier of the batch job
Job time	Maximum amount of computer processing time the job may use
Job priority	Processing priority the batch job receives
Account	Source of funds to pay for the computer resources the job uses
FIMAS ID	General project or activity the batch job supports
NCC bin	Where to send printed job output
Destination	Where to print job output
NCC form	The type of paper on which to print job output

Job name is an eight-character field that identifies the batch job to the IBM computer system. The first three characters must be your EPA National Computer Center user-id. Since that part of the job name is required, menus 3.6 and 1.3 put your user-id there for you, and you cannot alter that part of the job name. The rest of the job name has the default value "CONCR" on menu 3.6 and "CONCD" on menu 1.3. You can change that part of the job name to any five letters or numbers you wish.

Job time is the maximum amount of CPU time the batch job may consume. It is specified as two numbers, minutes and seconds, separated by a comma. The default job times, 5 minutes for data retrieval (menu 3.6) and 2 minutes for database contents report (menu 1.3), are sufficient. Depending on your selection criteria, your batch job may take less time. However, if you do not specify enough time, the batch job will not complete the data retrieval or the report.

Job priority determines when your batch job is considered for execution. There are two possible values. Priority value "2", the default on both menus, makes your job immediately available for execution. Usually your job will begin executing within a few minutes after being submitted. Priority value "1" puts your batch job in an "overnight" category that is not considered for execution until after 5:00 p.m. eastern time. Priority "1" jobs cost only half as much per CPU minute as priority "2" jobs, however.

The *account* field is the EPA National Computer Center account code that will be charged for the cost of the batch job. The account code is supplied to you when you register as a user of the computer center. Menus 3.6 and 1.3 obtain the account code you are using for your terminal session and display that as the initial value of the *account* field. If you have multiple account codes, you can enter another one, if you wish.

FIMAS ID is another accounting code that identifies the project or general type of work that the batch job is supporting. Your Regional modeling contact can tell you what FIMAS code to use. The menus do not have an initial value for this field.

NCC bin designates where the computer center puts the printed output of the batch job. A value like "B132" identifies a physical bin at the computer center from which you are authorized to remove job listings. A value like "Muid" tells the computer center staff

to mail the printed output to the address on file for user-id *uid*. The menus do not have an initial value for this field.

Destination specifies where to print the job listing. The value "LOCAL" means print it at the EPA National Computer Center. This is the default destination on both menus. Values like "RMT321" mean print the job at a remote printer, presumably located where you are. The value "HOLD" means do not print the output, but retain it on the computer system where it can be viewed using a terminal. Model Concentration Data Retrieval Subsystem batch jobs automatically retain the job output, in addition to printing it, so it is not necessary to use destination "HOLD" to be able to view job output with a terminal.

NCC form specifies the kind of paper on which to print the job listing. You may leave this field blank (the initial value on both menus) to indicate that the printer's default form should be used. The EPA National Computer Center default form is "8381", which is fanfold paper approximately 12 inches wide and 8.5 inches high. If you specify a *destination* other than "LOCAL", it is best to leave *NCC form* blank, thus using the remote printer's default form. Some remote printers cannot handle a forms request, and "stall" if they encounter one in job output. Then the IBM computer operator must take special action to remove the job output from the print queue and restart the printer.

```
+3.6-------------------------------------------------------------------+
|                  GMISS: Retrieve Model Concentration Data            |
|                        Specify Batch Job Parameters                  |
|                                                                      |
|                                                                      |
|   Enter the information needed to submit a batch job, then press ENTER.
|                                                                      |
|                          Job Name: BSD CONCR                         |
|                          Job Time: 5,00   (Min,Sec)                  |
|                      Job Priority: 2                                 |
|                           Account: GAME                              |
|                          FIMAS ID: ________                          |
|                           NCC Bin: ____                              |
|                       Destination: LOCAL                             |
|                          NCC Form: ____                              |
|                                                                      |
|                                                                      |
|                                                                      |
|        PF3/PF15 = Return to previous menu without submitting a job.  |
+----------------------------------------------------------------------+
```

Figure 5-15. Menu 3.6 - Specify Batch Job Parameters for Data Retrieval

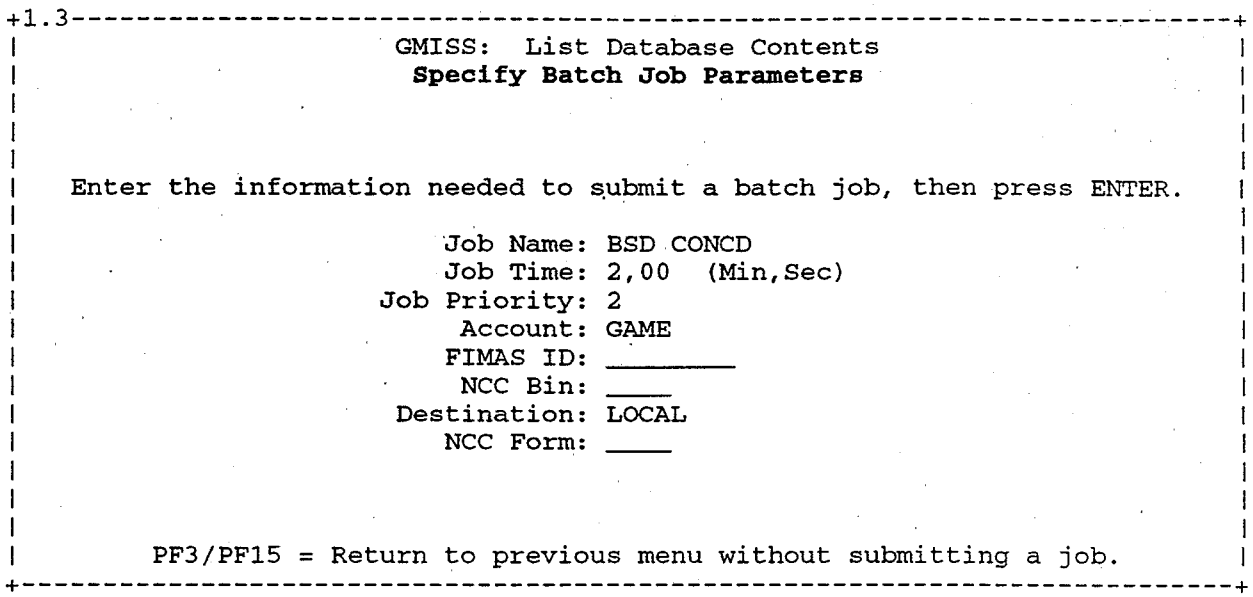

Figure 5-16. Menu 1.3 - Specify Batch Job Parameters for Database Contents Report

Menus 3.6 and 1.3 save the values you specify for the batch job parameters, and "remember" those values the next time you use the menu. Since you probably will use the same values each time, you have to type them in the fields only the first time you use the menu.

Instructions

Enter values in any fields that are blank, and alter the initial values of fields if you wish. Every field except *NCC form* must have a value. Press the ENTER key to accept the values and submit the batch job. The computer system confirms that the batch job has been submitted by displaying a message like the one shown in Figure 5-17. Press the ENTER key to clear the message from your terminal, and the GMISS main menu appears. At this point you can initiate another function, or press the PF3 key or PF15 key to exit from the GMISS menu system.

To return to the previous menu without submitting a batch job, press the PF3 key or PF15 key of your terminal.

```
IKJ56250I JOB BSDCONCR(JOB12345) SUBMITTED
***
```

Figure 5-17. Notification That Batch Job Was Submitted

Error Messages

<field-name> may not be blank.

Every menu field except *job time* and *NCC form* must contain a non-blank value. <field-name> may be "Job time", "Job priority", "Account", "FIMAS ID", "NCC bin", or "Destination". The position of the cursor indicates the particular field to which the message applies. Fill in the field and press the ENTER key.

Invalid job time. Use the format min,sec.

A value for the *job time* field must consist of two numbers, minutes and seconds of CPU time, separated by a comma. Enter a value with that format and press the ENTER key.

Invalid job priority. Enter '2'(normal) or '1'(deferred).

Only the values listed in the message are valid for *job priority*, and the value entered is not one of them. Correct the job priority field and press the ENTER key.

Invalid NCC bin. Use the format Bnnn or Muid.

Only two kinds of values are acceptable for *NCC bin*: *B* followed by three digits, or *M* followed by a three-character user-id. Enter a value with one of those formats and press the ENTER key.

5.12 Menu 3.7 - Data Retrieval In-Progress Message

If you select the menu 3.5 option for interactive mode retrieval of concentration data, menu 3.7 appears after menu 3.5. Menu 3.7 (Figure 5-18) is simply a message that informs you that the data retrieval is taking place. No action is required and the menu accepts no input. There is no way to interrupt the data retrieval processing. When it is complete, the GMISS main menu appears.

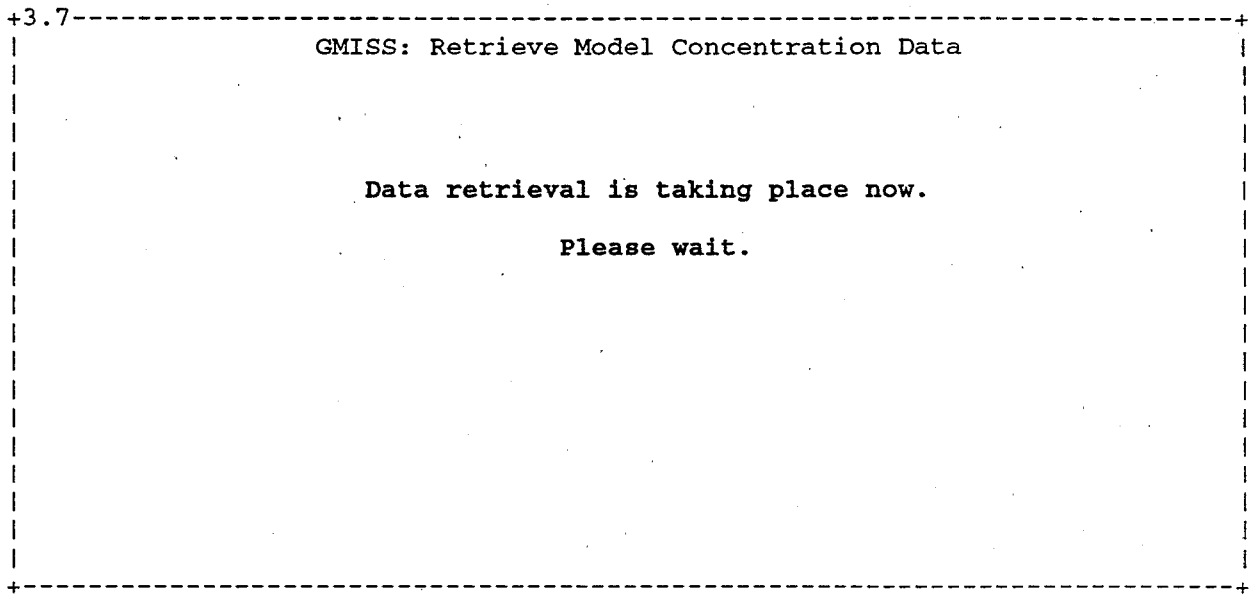

Figure 5-18. Menu 3.7 - Data Retrieval In-Progress Message

6. OUTPUT

This chapter describes the formats and contents of Model Concentration Data Retrieval Subsystem files.

6.1 Concentration Data Retrieval File

A concentration data retrieval file is the primary product of the Model Concentration Data Retrieval Subsystem. It is either a SAS data library or an IBM partitioned dataset that resides on disk storage of the NCC-IBM computer system depending on your selection on menu 3.5. Every concentration data retrieval file has two members: INFO, a summary of the selection criteria used to create the retrieval file; and DATA, the concentration data extracted from the GMISS database and descriptors that identify the extracted data. Table 6-1 lists and describes the fields in INFO records, and Table 6-2 describes the fields in DATA records.

The INFO member in a retrieval file has a record for every set of *model*, *study*, *scenario*, and *frstdate-lastdate* values that a user specifies for selection criteria. The INFO records are in ascending order of those fields' values. The other fields have the same values in all records. A record has fields for 3 layer names and 30 species names which are the same limits placed by menu 3.4. The purpose of the INFO member is to provide a relatively quick and easy way for a user or GMISS software (such as the proposed graphics subsystem) to determine the contents of a retrieval file.

The DATA member has a record for every grid cell in the retrieval subdomain for every combination of *model*, *study*, *scenario*, *species*, *layer*, and *date* values in the extracted concentration data. DATA records are in ascending order of *model*, *study*, *scenario*, *species*, *layer*, *date*, *row*, and *column* values. Every record contains the concentration of *species* predicted for each hour of *date* in a simulation. The purpose of the DATA member is, of course, to contain the extracted model concentration data and the descriptor values necessary to identify the data. For a SAS-format retrieval file, one could use the SAS FREQ procedure to list the descriptor values present in the DATA member and to determine the number of occurrences of each value. Based on knowledge of the

file organization, one can use the descriptor occurrence counts to verify that the retrieval file contains the correct number of records for each simulation retrieved.

To examine a SAS-format retrieval file, one may print the file contents using the SAS PRINT procedure or browse the file interactively using the SAS display manager commands FSBROWSE or FSVIEW[3]. To examine a sequential-format retrieval file, one may print the file contents using the TSO command PRINTDS[4] or browse the file interactively using the BROWSE option of ISPF.

[3]See *SAS Procedure Guide* for help on the SAS procedures.

[4]See *NCC User's Guide.*

Table 6-1. Fields in Member INFO of Model Concentraion Data Retrieval Files

Field	Field Type,Length SAS		Sequential		Description
MODEL	Char	8	Char	8	Name of a model that produced concentration data in the retrieval file; "ROM22" (ROM version 2.2) is an example
STUDY	Char	8	Char	8	Name of a group of model simulations having the same purpose, funding, etc.; "ROMNET" is an example
SCENARIO	Char	8	Char	8	Name of a particular simulation that produced concentration data in the retrieval file; an example is "BASE85" (1985 base case)
FRSTDATE	Num	4	Char	8	First and last dates in simulation *scenario* of concentration data in the retrieval file; SAS date format in a SAS retrieval file, "mm/dd/yy" (month, day, and year) in a sequential retrieval file
LASTDATE	Num	4	Char	8	
DOMAIN	Char	8	Char	8	Name of the model domain for all the concentration data in the retrieval file; an example is "MIDROXA1"
COLMIN	Num	4	Num	3	Minimum and maximum *domain* column numbers of the concentration data in the retrieval file; defines the west-east size of the subdomain
COLMAX	Num	4	Num	3	
ROWMIN	Num	4	Num	3	Minimum and maximum *domain* row numbers of the concentration data in the retrieval file; defines the south-north size of the subdomain
ROWMAX	Num	4	Num	3	
NLAYR	Num	4	Num	2	Number of model layers specified as selection criteria for the retrieval file; the concentration data for every *model* does not necessarily include all specified layers
NSPEC	Num	4	Num	2	Number of chemical species specified as selection criteria for the retrieval file; the concentration data for every *model* does not necessarily include all specified species
LAYR1...3	Char	4(x3)	Char	4(x3)	Names of the layers used as selection criteria for the retrieval file; up to 3 names are allowed
SPEC1...30	Char	8(x30)	Char	8(x30)	Names of the species used as selection criteria for the retrieval file; up to 30 names are allowed
		316		316	Total record length (bytes)

Table 6-2. Fields in Member DATA of Model Concentraion Data Retrieval Files

Field	Field Type,Length SAS		Sequential		Description
DOMAIN	Char	8	Char	8	Name of the model domain for the concentration data in the retrieval file; an example is "SEROXA1"
MODEL	Char	8	Char	8	Name of the model that produced the concentration data in this retrieval file record; an example is "ROM21" (ROM 2.1)
STUDY	Char	8	Char	8	Name of the group of model simulations to which the concentration data in this retrieval file record belong; "ROMNET" is an example
SCENARIO	Char	8	Char	8	Name of a particular simulation that produced concentration data in this retrieval file record; an example is "BASE85" (1985 base case)
SPECIES	Char	8	Char	8	Name of the chemical species whose concentration data this retrieval file record contains; "NO2" is an example
LAYER	Char	4	Char	4	Name of the model layer associated with the concentration data in this retrieval file record; "1" is an example
SPC	Num	4	Num	2	Sequence number of *species*; indicates the normal order of species in concentration files created by *model*
LYR	Num	4	Num	2	Sequence number of *layer*; indicates the order of layers, starting with the lowest one and proceeding upward
CONCDATE	Num	4	Char	8	Date in simulation *scenario* of the concentration data in this retrieval file record; SAS date format in a SAS retrieval file, "mm/dd/yy" (month, day, and year) in a sequential retrieval file
ROW	Num	4	Num	3	Row number in *domain* of the concentration data in this retrieval file record; defines the south-north position of the grid cell
COL	Num	4	Num	3	Column number in *domain* of the concentration data in this retrieval file record; defines the west-east position of the grid cell
CONC0...23	Num	4(x24)	Num	12(x24)	Concentration of *species* for each hour of *concdate*; in a sequential retrieval file, fields have the SAS format "E12." (+1.23456E+01)
		160		350	Total record length (bytes)

6.2 Database Contents Report

The Model Concentration Data Retrieval Subsystem produces only one report, the database contents report. The report provides information that users of the subsystem can use to determine what data are available for retrieval. The report lists the values users can enter as selection criteria in data retrieval menus, and it describes what the values mean. For example, the report lists "ROM21" as a value for *model* and gives "Regional Oxidant Model, version 2.1" as the description of that value.

The database contents report summarizes the model concentration data present in the GMISS database by listing the primary values used to select data for retrieval: model, domain, study, scenario, and date. The top half of Figure 6-1 shows the main report format. The first line of each page gives the date of report generation, the report title, and the page number. The next three lines list and describe the model, domain, and study values for the report entries on that page. The body of the report, which follows the column headings, has one entry per scenario. An entry includes the scenario value and description, and one or more lines that list the dates for which concentration data having that combination of model, domain, study, and scenario values are present in the GMISS database. Besides the beginning and ending dates, each line also includes the number of model layers and chemical species for which concentration data are present for those dates. The next column indicates whether the species are the "standard set", the ones normally loaded into GMISS for the model. The last column shows the data status: "public", the data are available to general users.

The main report is in ascending order of model, domain, study, and scenario values. Each combination of model, domain, and study values begins on a new page. Within a report entry, lines are in chronological order of the beginning date of the date range.

The bottom half of Figure 6-1 shows the format of a species and layer summary page, which appears at the end of the main database contents report. There is a summary page for each model listed in the main report. The first line of the page is identical to the main report, giving the date, report title, and page number. The next line identifies the model to which the summary page pertains. The values and descriptions of species and

layers for that model make up the rest of the page. If all a model's species and layer values do not fit on one page, the list continues on one or more subsequent pages.

All summary pages are grouped together, after the main body of the report. Summary pages are in order of ascending model value, and each model's summary begins on a new page. Within a model summary, species and layer values are each in ascending order.

mm/dd/yy GMISS Model Concentration Data Subsystem Database Contents Report Page nn

Model: [.name.] [.....................description.........................]
Domain: [.name.] [.....................description.........................]
Study: [.name.] [.....................description.........................]

Scenario	Description	Dates Available	Layers	Species	Standard Set	Status
[.name.]	[.....................description_1......................]	mm/dd/yy - mm/dd/yy	nn	nn	Yes	Public
	[.....................description_2......................]	mm/dd/yy - mm/dd/yy	nn	nn	No	Restric
	[.....................description_3......................]	mm/dd/yy - mm/dd/yy	nn	nn	Yes	Mixed
	[.....................description_4......................]	mm/dd/yy - mm/dd/yy	nn	nn	Yes	Public
	[.....................description_5......................]	mm/dd/yy - mm/dd/yy	nn	nn	Yes	Public
BASE85	ROMNET 1985 Base Case: Anthropogenic emissions derived from 1985 NAPAP inventories. Mobile emissions computed by MOBILE4 and adjusted for temperature effects. Biogenic emissions computed by BEIS. ROM 2.1 used for simulations.	07/08/85 - 07/23/85 08/08/85 - 08/17/85 07/03/88 - 07/18/88	3 3 3	17 25 25	No Yes Yes	Restric Public Public
CS01	ROMNET Strategy 1: Maximum technology VOC controls applied to the 2005 Baseline region-wide. NOx, CO, and Canadian emissions are at the 2005 Baseline. MOBILE 3.9 used for mobile emissions.	07/03/88 - 07/18/88	3	25	Yes	Public
CS02	ROMNET Strategy 2: Maximum technology VOC controls applied to the 2005 Baseline in the NE Corridor. VOC elsewhere and NOx and CO emissions region-wide are at the 2005 Baseline. MOBILE 3.9 used for mobile emissions.	07/03/88 - 07/18/88	3	25	Yes	Public

- -

mm/dd/yy GMISS Model Concentration Data Subsystem Database Contents Report Page nn

Summary of Layers and Species for Model [.name.]

Layer	Description
[.name.]	[.............description.............]
1	Surface/Marine layer (approx. 0 - 100 m)
2	Mixed layer (approx. 100 - 500 m)
3	Inversion layer (approx. 500 - 2000 m)
... etc. ...	

Standard

Figure 6-1. Model Concentration Data Subsystem Database Contents Report Format

TECHNICAL REPORT DATA

(Please read Instructions on the reverse before completing)

1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO.
EPA-450/4-91-032		

4. TITLE AND SUBTITLE
Gridded Model Information Support System (GMISS) User's Guide Volume III: Model Concentration Data Retrieval Subsystem

5. REPORT DATE
November 19, 1991

6. PERFORMING ORGANIZATION CODE

7. AUTHOR(S)
Bennie Sutton (CSC)

8. PERFORMING ORGANIZATION REPORT NO.

9. PERFORMING ORGANIZATION NAME AND ADDRESS
Computer Sciences Corporation
Applied Technology Division
P.O. Box 12767
Research Triangle Park, NC 27709

10. PROGRAM ELEMENT NO.

11. CONTRACT/GRANT NO.

12. SPONSORING AGENCY NAME AND ADDRESS
U.S. Environmental Protection Agency
Technical Support Division (MD-14)
Office of Air Quality Planning and Standards
Research Triangle Park, NC 27711

13. TYPE OF REPORT AND PERIOD COVERED

14. SPONSORING AGENCY CODE

15. SUPPLEMENTARY NOTES

16. ABSTRACT

The Gridded Model Information Support System (GMISS) is a data base management system for selected Regional Oxidant Model (ROM) input data and species concentrations produced by gridded photochemical air pollution models. The Model Concentration Data Retrieval Subsystem allows State and local air pollution control agencies to retrieve these hourly data for use in support of their regulatory programs. These hourly data may be used to calculate initial and boundary conditions for the Empirical Kinetics Modeling Approach (EKMA). They may be used for other modeling application needs as well as to support evaluation of regional emission controls strategies. Both temporal and spatial subsets of the data may be retrieved. This document describes how to invoke and execute the Model Concentration Data Retrieval Subsystem using the full screen menus.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Regional Oxidant Model (ROM) species, domain, scenario		

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