NASA

Technical Memorandum 86084

PILOT CLIMATE DATA SYSTEM
USER'S GUIDE

Mary G. Reph
Lloyd A. Treinish
Lewis Bloch

AUGUST 1984

National Aeronautics and
Space Administration

Goddard Space Flight Center
Greenbelt, Maryland 20771

THE PILOT CLIMATE DATA SYSTEM

USER'S GUIDE

MARY G. REPH
LLOYD A. TREINISH
LEWIS BLOCH

FOREWORD

This document provides information and instructions for using Version 2.1 of the Pilot Climate Data System (PCDS), an interactive software system for locating, obtaining, manipulating, and displaying climate-research data.

Much of this document has been created from online help information which is directly accessible from within the PCDS. The document presents the information in an order which closely follows what a user sees when he/she invokes the online·help features of the PCDS.

The PCDS has been jointly developed by GSFC personnel in the National Space Science Data Center (NSSDC) and by supporting contractors: Computer Sciences Corporation (CSC), Applied Research Corporation (ARC), Science Applications Research Corporation (SAR), Systems and Applied Sciences Corporation (SASC), SM Systems and Research Corporation (SMSRC), OAO Corporation, and Business and Technological Systems, Incorporated (BTS). Those contributing to this document include Larry Herath, Larry Novak, Mary Reph, Peter Smith, and Lloyd Treinish of GSFC, Lewis Bloch of SAR, Don Loomis and George Mahler of CSC, and Shue-wen Chen of ARC.

Comments and inquiries about this document or the PCDS should be addressed to the PCDS Data and Archive Manager, Ms. M.G. Reph, Code 634, Goddard Space Flight Center, Greenbelt, Maryland 20771, 301-344-9040.

Table of Contents

PRECEDING PAGE BLANK NOT FILMED

PAGE \V INTENTIONALLY BLANK

List of Figures

SECTION 1 - INTRODUCTION

The major objective of the Pilot Climate Data System (PCDS) is to provide scientific researchers with a uniform, integrated system of data catalogs, inventories, access methods, manipulation capabilities, and display support. Specifically, it provides users with an easy method to identify and access useful weather, climate, atmospheres and oceans data sets. The PCDS operates on a DEC VAX-11/780 computer at NASA/GSFC. It is composed of five subsystems: CATALOG, INVENTORY, DATA ACCESS, DATA MANIPULATION, and GRAPHICS. This system is being used to explore new ways .of meeting some of the basic needs of scientists in the area of data management and to provide a seed system from which a more powerful and generalized system can evolve.

1.1 SYSTEM OVERVIEW

The PCDS consists of five subsystems: CATALOG, INVENTORY, DATA ACCESS, DATA MANIPULATION, and GRAPHICS. A brief description of each of the five subsystems of the PCDS is provided below.

The CATALOG Subsystem provides a user with comprehensive descriptions of a number of climate parameter data sets and the associated sensor measurements from which the climate parameters were derived. These descriptions include the temporal and spatial extents of the data sets together with the experiments' data products. The catalog information is maintained at two levels: summary and detailed. Summary information is stored in a data base managed by a commercial data base management system, ORACLE. The user may obtain a list of summary information about the data sets by specifying keywords to limit the information listed. Detailed descriptive information is maintained in text files which the user may browse as one would a book, using tables of contents to locate information of interest. The information is displayed at the user's terminal in a paged format.

The INVENTORY Subsystem provides detailed information about the temporal coverage and data volume of data sets which are readily accessible through either the PCDS or other applications systems with which the PCDS interfaces. This information is also stored in an ORACLE data base. The inventory performs two important functions. First, it allows a user to scan the total data holdings and determine whether data for a given time period are accessible. Second, it enables the DATA ACCESS Subsystem (described below) to automatically locate data meeting such user specifications as time range and parameters.

The DATA ACCESS Subsystem allows the user to access automatically the PCDS data sets using criteria such as time

1-1

range and geographic location. Output from this subsystem includes user disk files or tape files in the same format as the original data, or files in a special data-independent format which allows them to be input to other subsystems of the PCDS. These special files are called Climate Data Files (CDFs). Users may also obtain listings of the data. The data sets generated by the copy operation can be subsequently listed, copied or subsetted.

The DATA MANIPULATION Subsystem allows the user to access and manipulate the data-independent files created via DATA ACCESS or by application programs written by users, possibly on another machine. Therefore, this subsystem is not limited only to data sets the PCDS directly supports. This subsystem includes programs which allow users to obtain a listing of a CDF's contents, subset a CDF, or split a gridded data set apart into its components (latitude, longitude, value). The output of any of these may be input to any other DATA MANIPULATION program or the programs in the GRAPHICS Subsystem.

The GRAPHICS Subsystem provides the user with the tools to create various graphical representations of the data stored in CDFs. Users may generate such graphical displays as histograms, "x-y" plots, contour plots, and surface diagrams. Many options exist to tailor the output for a specific need. Various color and monochromatic display devices (e.g., terminals and plotters) are supported. Publication/presentation quality output is also available.

One of the PCDS's development goals was to provide a "user friendly" software system which would permit a scientist to operate the system independently. This has been achieved by using the Transportable Applications Executive (TAE), a collection of executive programs being used by several NASA applications to provide a consistent and uniform user interface. The interface is simple and easy to use and allows users to perform complex data manipulations without extensive knowledge of the PCDS computer system or the software being executed. When the interactive environment in which the PCDS operates is coupled with this interface, even an inexperienced user may quickly access, examine and copy data to disk or tape, or create displays suitable for presentations or publications.

1.2 SCOPE AND OBJECTIVES OF GUIDE

This user's guide has been limited purposely to a high level description of the PCDS. The objectives of the guide are to provide users of the system with an overview and summary of the major components of PCDS. Thus, it includes only the information necessary to orient users to the system. This guide should be used in conjunction with the online information which may be accessed dynamically from within PCDS.

1.3 CURRENTLY SUPPORTED DATA SETS

The PCDS Catalog contains comprehensive descriptions of a large number of climate parameter data sets and the associated instrument radiance data sets. Most of the data sets originate from remotely sensed satellite experiments, but some provide supporting ground-based data. A wide selection of climate parameters are described, ranging from ocean surface measurements to upper atmospheric trace constituents. These data sets do not necessarily reside in the PCDS facility, and descriptions may include planned data products as well as existing ones.

The current holdings of the PCDS tape library are listed below:

(1) Nimbus-7 Stratospheric Aerosol Measurement Experiment II Beta and Aerosol Number Density Archival Tapes (BANAT);

(2) Nimbus-7 Temperature Humidity Infrared Radiometer (THIR) Calibrated-Located Data Tapes (CLDT);

(3) Nimbus-7 Temperature Humidity Infrared Radiometer (THIR) Clouds Earth Radiation Budget Tapes (CLE);

(4) Nimbus-4 Backscatter Ultraviolet (BUV) Detailed Profiles (DPFL);

(5) Nimbus-4 Backscatter Ultraviolet (BUV) Daily Zonal Means Profiles and Totals (DZMP);

(6) Nimbus-7 Earth Radiation Budget Experiment Matrix Tapes (ERB-MATRIX);

(7) Nimbus-7 Earth Radiation Budget Experiment Zonal Means Tapes (ERB-ZMT);

(8) First Global Atmospheric Research Program (GARP) Global Experiment (FGGE) Earth Radiation Budget data extracted and reformatted from Nimbus-7 ERB-MATRIX Tapes (ERBM/FGGE);

(9) First Global Atmospheric Research Program (GARP) Global Experiment (FGGE) Earth Radiation Budget data extracted and reformatted from Nimbus-7 ERB-Zonal Means Tapes (ERBZ/FGGE);

(10) Nimbus-5 Electrically Scanning Microwave Radiometer (ESMR) three-day grid of Calibrated Brightness Temperatures (ESMR3DAY);

(11) First GARP Global Experiment (FGGE) Level II-b (FGGE2B) and Level III-b (FGGE3B) tapes;

(12) Nimbus-7 Limb Infrared Monitor of Stratospheric (LIMS)
temperature profiles specially formatted for FGGE
(LIMS/FGGE);

(13) National Meteorological Center Daily Analyses of
atmospheric parameters (NMCGRD);

(14) National Oceanic and Atmospheric Administration (NOAA)
Heat Budget Data (NOAA-HB);

(15) Nimbus-7 Solar Backscattered Ultraviolet (SBUV)
Experiment Ozone (OZONE-S);

(16) Nimbus-7 Total Ozone Mapping Spectrometer (TOMS) Ozone
(OZONE-T);

(17) Stratospheric Aerosol and Gas Experiment Atmospheric
Explorer Profiles Tapes (SAGE-PROF);

(18) Nimbus-7 Solar Backscatter Ultraviolet (SBUV) Level II-c
ozone readings formatted for FGGE (SBUV/FGGE);

(19) Nimbus-7 ERB Solar and Earth Flux Data Tape (SEFDT);

(20) Nimbus-7 Scanning Multichannel Microwave Radiometer
(SMMR) data formatted for FGGE (SMMR/FGGE), including:
   – Sea Surface Temperature,
   – Sea Surface Wind Speed,
   – Total Atmospheric Water Vapor, and
   – Sea Ice Concentration;

(21) World Monthly Surface Station Climatology (SSCLIMATE).

INVENTORY and DATA ACCESS capabilities are provided for all
of the above data sets. Note that the PCDS also supports an
inventory of Visible Infrared Spin Scan Radiometer Atmospheric
Sounder (VAS) data (VAS-CCT) which are not held in the PCDS
library and, therefore, for which DATA ACCESS is not provided.

1.4 FUTURE DEVELOPMENT OF PCDS

The system described in this document reflects the current
capabilities of the PCDS. During the next development phase,
additional graphical display capabilities will be added. This
will allow a user to examine a data set or subset in more depth.
For example, pseudo-color imagery will be provided. In addition,
the ability to perform standard statistical analyses, data set
merging, and spatial and temporal data regridding will be added.
Since the DATA MANIPULATION and GRAPHICS Subsystems use a single
data-independent format, it will also be possible to perform data
intercomparisons and to combine climate data originating from
different instrument sources.

1.5 EXPANSION OF THE PCDS DATA BASE

The PCDS has been designed to permit the addition of new data sets with minimal effort, and plans call for adding support for several data sets every year. It is expected that there will be annual invitations for scientists to participate in this program.

1.6 STRUCTURE OF THE USER'S GUIDE

Section 2 of this guide gives a brief description of the TAE User Interface and the PCDS structure. Further information describing the TAE operational modes and help features is given in Appendix B. Section 3 presents an overview of the five major subsystems of the PCDS (CATALOG, INVENTORY, DATA ACCESS, DATA MANIPULATION, and GRAPHICS) and describes its major functional capabilities. It does this by presenting the TAE menus and describing the user inputs to the system. Appendix A of this guide provides examples of user inputs and resultant system outputs for a typical user scenario. Appendix C gives a parameter summary for the PCDS procedures.

SECTION 2 - USER INTERFACE

The PCDS has been developed with a consistent, user-friendly interface. This interface makes use of the Transportable Applications Executive (TAE) which provides menu selection, parameter driven (tutor) displays, and extensive online help information. It is easy for the inexperienced user to use, efficient for the experienced user, and self-documenting.

2.1 ACCESSING THE PCDS

The material in this subsection is of a generalized nature and provides the minimum of information that is required to run PCDS. After familiarization with the procedures outlined below, the user is encouraged to read Section 3 of this document for more detailed information.

2.1.1 Structure of the PCDS

The PCDS consists of five major subsystems: CATALOG, INVENTORY, DATA ACCESS, DATA MANIPULATION, and GRAPHICS. Each subsystem is divided into further functional procedures. To invoke one of the procedures of the PCDS, the user moves down a menu tree to the desired procedure. Parameters are set using TAE tutored-input displays and the procedure is then run. After the procedure has completed its processing, it returns control to the menu from which it was activated.

2.1.2 Signing on to the PCDS

In order to use the PCDS computer a user must obtain a user ID and password and, if remote access is desired, a phone number for a dial-up line. (This information is available through the PCDS Data Operations Manager, J. E. Cleveland, 301-344-9498).

Logging on to PCDS involves two steps. A user must first log on to the PCDS VAX 11/780 computer, and then activate the PCDS software system. (In the instructions which follow, all inputs are terminated by pressing the return key (<CR>).)

The standard sign-on procedure for the PCDS VAX computer is as follows:

    o Establish a terminal line link with the computer (e.g.,
       if access is remote, dial the computer).

    o Press the return key.

o Enter an identification code in response to the prompt USERNAME.

o Enter a password in response to the prompt PASSWORD.

The computer will then display any messages and the prompt "$".

To activate the PCDS the user enters the following command:

PCDS

The system then displays additional messages specific to the PCDS, and the user employs TAE to specify his or her selections.

When the user completes all processing he or she logs off. The user may do this by entering LOGOFF from either any menu display or TAE command mode, or by entering TAE command mode and typing the command EXIT. The latter sequence of operations will leave the user logged on to the PCDS computer. To log off the computer the user enters LOGOFF.

2.2 TAE INTERFACE

TAE provides a consistent interface for all program elements in the PCDS. This consistency also extends to other systems using TAE. TAE incorporates menus for program selection, tutor displays for setting program parameters, a command mode for program selection by experienced users, and extensive help features to create a self-documenting system. This subsection presents major features of TAE and instructions for using it.

There are three basic modes of operation during a TAE session: menu mode, command mode, and tutor mode. In menu mode, currently implemented only for the CRT user (VT100, VT52, or Tektronix 4027), the user can navigate to the desired program by selecting options from menus. In command mode, he or she can directly execute programs without navigating the menu tree. In tutor mode (currently implemented only for the CRT user), he or she can specify and review the parameters which are passed to the application program. Both the tutored displays and menus contain a prompt line (next to last line of the display) and an information entry line (bottom line of display).

When the PCDS is activated, TAE displays greeting messages and announcements and prompts the user for the type of terminal he is using: VT100, VT52, T4027 (for Tektronix 4027), or OTHER. TAE then enters menu mode or command mode depending on the terminal type. For the VT100, VT52, or T4027 terminals, TAE starts in menu mode; for the other terminals, TAE starts in command mode. In menu mode, TAE displays the initial (or "root") menu, then prompts for input with a "?". In command mode, TAE prompts for a command with "TAE>". In either mode, the user may

type "HELP" to obtain a description of the proper responses for
the current mode.

In menu mode, the user is presented with a menu containing
numbered entries, each of which describes another menu or a
function ("proc") which can be activated by TAE. If the user
selects a menu entry, the corresponding menu is displayed; if he
or she selects a proc entry, TAE enters tutor mode for the proc.
(All the PCDS Menus indicate the corresponding menu name in ·"[]",
or proc name in "()" to the right of the description of an
entry.) The user may also enter a menu mode command. Commands
may be truncated as long as uniqueness is maintained; case is not
significant.

Tutor mode may be entered either from menu mode, when a
selection is made that requires the execution of a proc, or from
command mode, when the "TUTOR" or "?" command is typed. In tutor
mode, the user is presented with the first page of a (possibly)
multi-page display showing information on each parameter of the
selected proc. The name of the parameter, a description of the
parameter, and the current value of the parameter are displayed.
The value of the parameter may be established by default, or the
user may set the value explicitly. (All non-defaulted parameters
must be set before a user attempts to activate a procedure). To
set a parameter value, the user types the parameter name followed
by an "=" sign and the desired value. When the user has made his
or her specifications, the user activates the proc by issuing the
RUN command. Commands and keywords may be truncated as long as
uniqueness is maintained; case is not significant.

The commands which may be used in TAE command mode may be
truncated as long as uniqueness is maintained. The RUN command
is optional; for example, the user may type either "RUN PROGRAM"
or "PROGRAM".

Once the user issues the RUN command, control is passed to
one of the PCDS programs. These programs may prompt for
additional information needed to complete the request. When the
program exits, TAE returns to the mode from which the proc was
selected, either menu or command mode. If program errors occur,
or if the user wants to terminate a run before a program-
controlled exit can be performed, he or she may abort the run by
typing the "Control" and the "C" keys simultaneously (typing
"<CTRL>C"), and responding to the "TAE>" prompt with "ABORT".
Standard TAE commands are not available until the proc is aborted
or the proc terminates normally.

2.3 ONLINE HELP INFORMATION

The system provides help information at all levels. Once
the user understands the help structure and how to obtain help
information, the system becomes self documenting. (See Table
2-1). The levels of help information are listed below:

Table 2-1. Types of Help Information

TYPE	DESCRIPTION	COMMAND	MODE
Command mode help	description of TAE command mode operation	HELP	COMMAND
Menu mode help	description of TAE menu mode operation	HELP	MENU
Tutor mode help	description of TAE tutor mode operation	HELP	TUTOR
TAE commands	description of each TAE command	HELP command name	COMMAND or MENU
menus	description of subsystem and brief description of each menu choice	HELP menu name or	MENU or COMMAND
		HELP 0 for help on current menu	MENU
process	detailed description of a process	HELP process name or	COMMAND or MENU
		HELP n where n is menu choice number in the current menu	MENU
parameter	detailed description of a process parameter	key=?? where "key" is a parameter name	TUTOR

(1) Help information on TAE modes.

(2) Help information for menus, including subsystem
     overviews and brief information on each menu choice.

(3) Help information on TAE commands and detailed
     information on each process. (A process is a single
     program, a procedure, or a sequence of programs.)

(4) Help information on each parameter of a process.

2.4 PCDS MENU TREE

Figures 2-1 through 2-6 illustrate the PCDS menu and process
tree. The tree begins at the Root Menu. The Root Menu is
displayed when the user logs onto the system. Rectangular boxes
are used to represent menus and oval boxes to represent
processes.

Movement from the current menu display to another menu
display may be performed in a number of ways:

(1) The option number selection mechanism can be
     used to step sequentially through the menu displays
     until the target menu is obtained. A menu item is
     selected by entering its option number, causing the
     menu or tutor display associated with this selection to
     be displayed. If the path to the target menu is via a
     menu node higher in the hierarchy than the current
     node, the menu tree must be ascended to this higher
     node by using the BACK or TOP keywords.

(2) If the name of the target menu is known, the
     user may access it directly by entering the keyword
     MENU followed by a space and the menu name. This can
     be performed from either the menu or command mode.
     (The name of each menu is displayed at the top of its
     menu display.)

```
                        ┌──────────┐
                        │   ROOT   │
                        │   MENU   │
                        └────┬─────┘
        ┌──────────┬─────────┼─────────┬──────────┐
┌───────────┐┌───────────┐┌───────────┐┌───────────┐┌───────────┐
│  CATALOG  ││ INVENTORY ││DATA ACCESS││   DATA    ││ GRAPHICS  │
│ SUBSYSTEM ││ SUBSYSTEM ││ SUBSYSTEM ││MANIPULATION││ SUBSYSTEM │
│   MENU    ││   MENU    ││   MENU    ││ SUBSYSTEM ││   MENU    │
│           ││           ││           ││   MENU    ││           │
└───────────┘└───────────┘└───────────┘└───────────┘└───────────┘
```
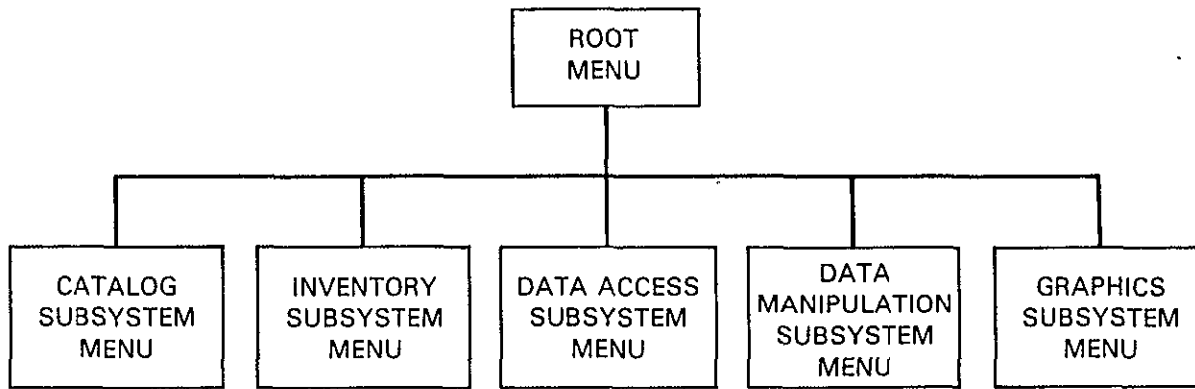
Figure 2-1. PCDS Menu Tree
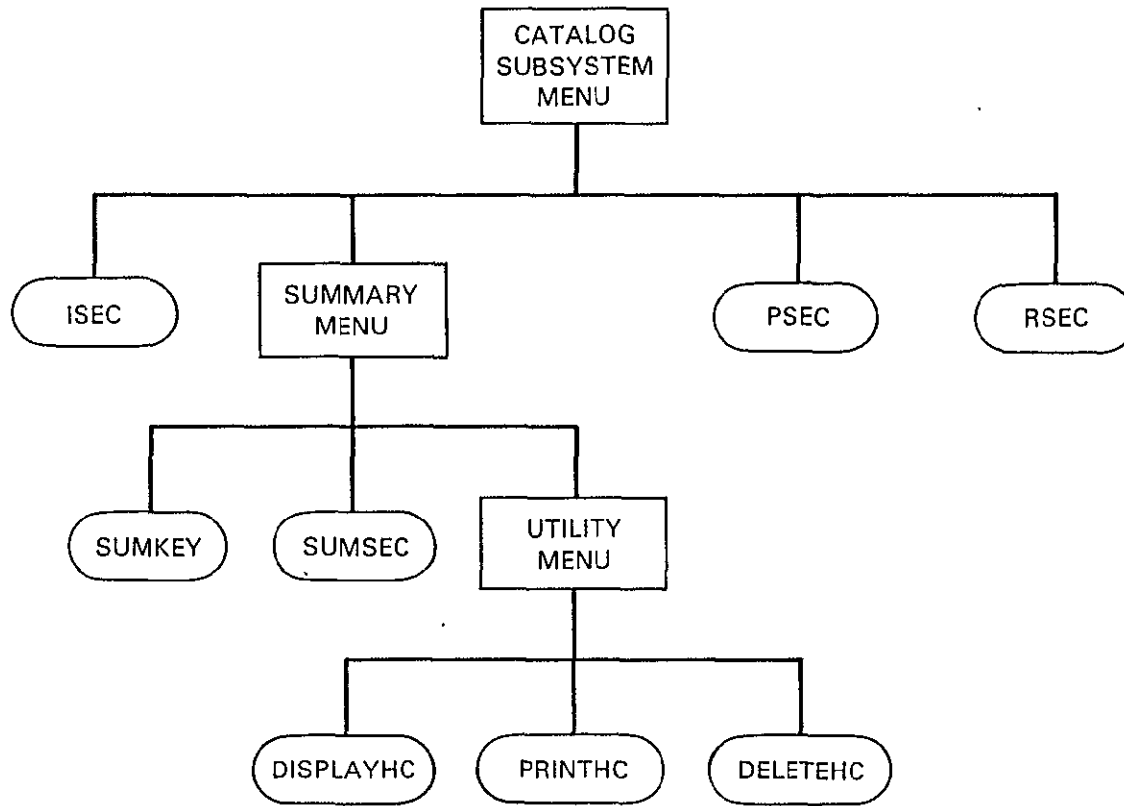
Figure 2-2. CATALOG Subsystem Structure
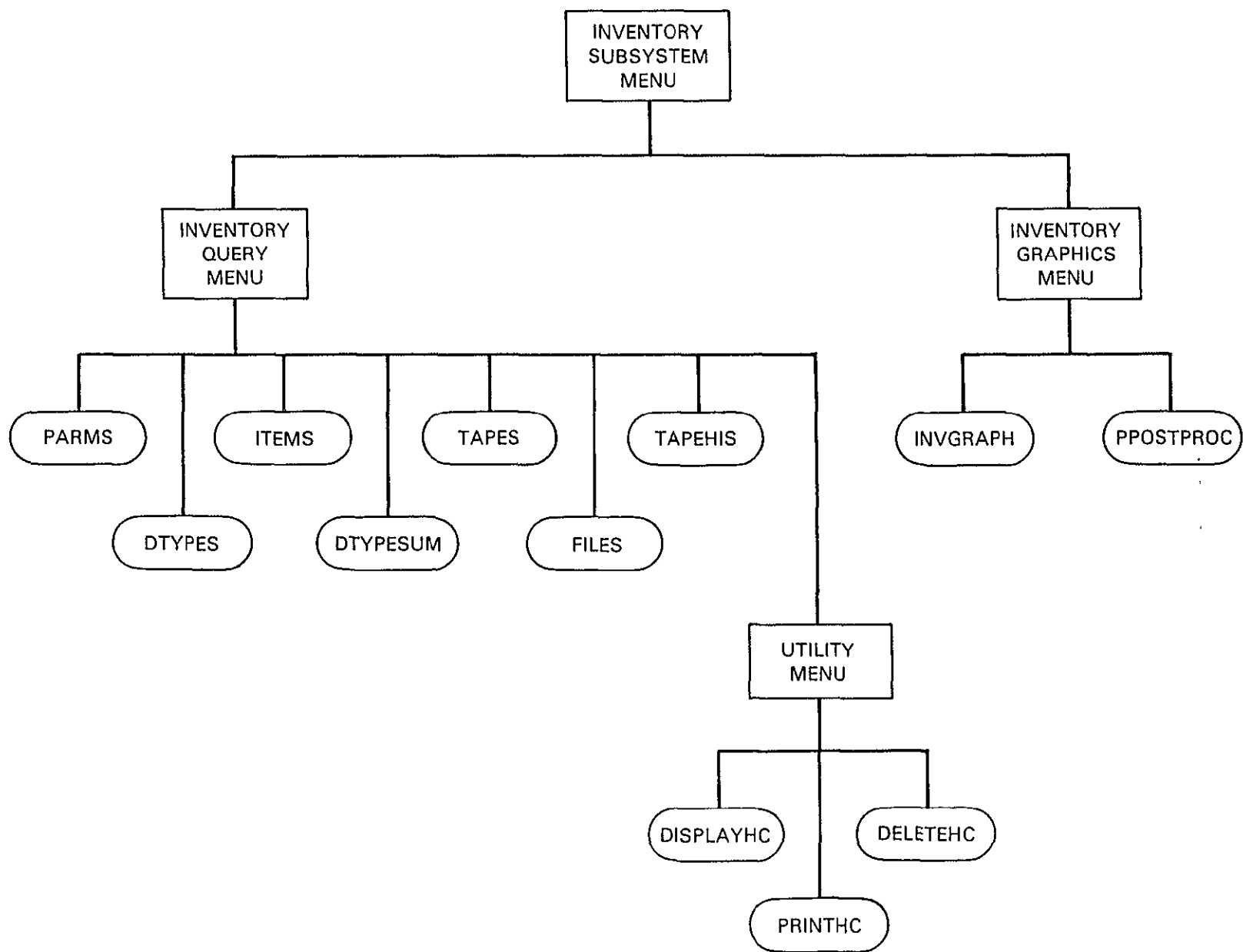
Figure 2-3. INVENTORY Subsystem Structure
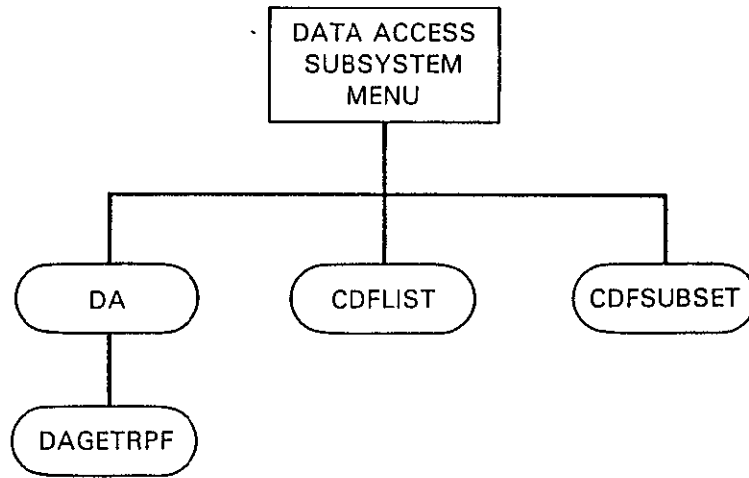
Figure 2-4. DATA ACCESS Subsystem Structure

```
                    ┌─────────────┐
                    │    DATA     │
                    │ MANIPULATION│
                    │  SUBSYSTEM  │
                    │    MENU     │
                    └─────────────┘
```

CDFLIST CDFSUBSET CDFCOMBIN UNGRIDCDF AVECDF
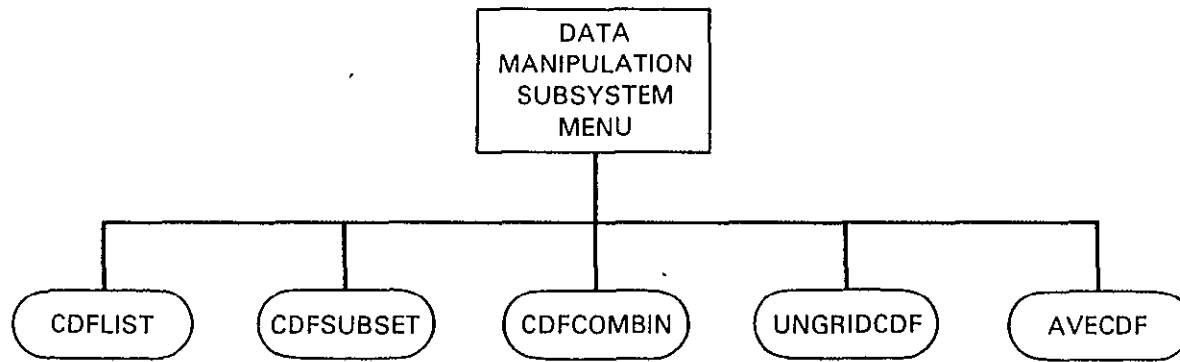
Figure 2-5. DATA MANIPULATION Subsystem Structure

```
                  ┌─────────────┐
                  │  GRAPHICS   │
                  │ SUBSYSTEM   │
                  │   MENU      │
                  └─────────────┘
```
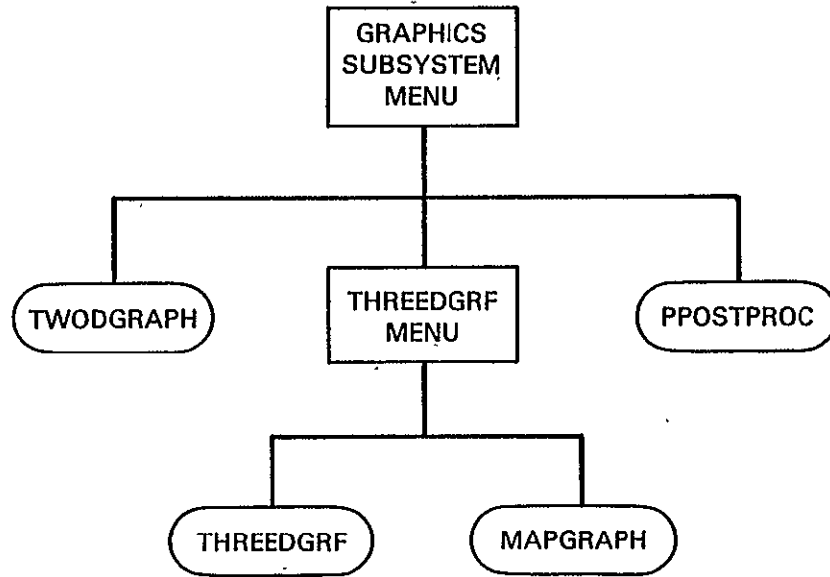
Figure 2-6. GRAPHICS Subsystem Structure

SECTION 3 - PCDS MENUS AND ASSOCIATED PROCESSING FUNCTIONS

This section of the user's guide describes the PCDS menu and
tutor displays, and explains how they are used to control the
system. These displays are organized into a tree structure.
Each menu screen represents a branching point of options for the
user. Each option leads to another menu display until a "leaf"
is reached at a tutor display. The user selects the desired PCDS
processing function via the sequence of menu displays, and
controls its operation via the tutor display.

The root of the menu tree is the PCDS Subsystem Menu, ROOT,
shown in Figure 3-1. This menu displays five options,
corresponding to the five subsystems of the PCDS:

    o   CATALOG
    o   INVENTORY
    o   DATA ACCESS
    o   DATA MANIPULATION
    o   GRAPHICS

The CATALOG Subsystem allows the user to examine a catalog
of comprehensive information about a number of climate parameter
data sets and the associated sensor measurements from which they
were derived.

The INVENTORY Subsystem allows the user to query an
inventory containing more detailed information about the temporal
coverage and data volume of a number of data sets which are
readily accessible through either the PCDS or other applications
systems with which the PCDS interfaces.

The DATA ACCESS Subsystem allows the user to automatically
access data sets available through the PCDS and select data of
interest using criteria such as time and geographic location.

The DATA MANIPULATION Subsystem allows the user to access
and manipulate data-independent Climate Data Files (CDFs) which
may be created with the DATA ACCESS Subsystem.

The GRAPHICS Subsystem allows the user to produce graphical
displays such as x-y plots, surface plots and contour maps, which
will display the data sets for examination.

3.1   THE CATALOG SUBSYSTEM

The CATALOG Subsystem allows the user to examine a catalog
containing comprehensive descriptions of a number of climate
parameter data sets and the associated sensor measurements from
which they were derived. The descriptions include the
characteristics, processing status, and availability of each data

PCDS Version 2.1 Subsystems Menu

1) CATALOG Subsystem Menu   [CATALOG]

2) INVENTORY Subsystem Menu   [INVENTORY]

3) DATA ACCESS Subsystem Menu   [DACCESS]

4) DATA MANIPULATION Subsystem Menu   [CDFUTIL]

5) GRAPHICS Subsystem Menu   [GRAPHICS]

Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
?

Figure 3-1. PCDS ROOT Menu

set or data product. This information is at a fairly high level
of aggregation (e.g., all BUV radiance measurements could
comprise one data set), but should be sufficient to enable the
user to determine whether to retrieve and use data from the data
sets.

The data sets described in the catalog do not necessarily
reside at the PCDS facility, and the catalog can describe planned
data products as well as existing data sets. The user can use
the INVENTORY Subsystem to determine which data sets currently
reside at the PCDS facility.

The CATALOG Subsystem Menu, Figure 3-2, provides several
options. Some options allow the user to browse detailed, textual
descriptions of data sets as a book, using a table of contents as
a guide to locate information of interest. Others allow the user
to obtain tabular listings containing a summary of information
about the data sets, with keywords to limit the information
listed. Online HELP is available for each of the programs in the
CATALOG Subsystem.

3.1.1 Browse Catalog Introduction Proc

The first option on the CATALOG Menu is a proc named ISEC.
ISEC allows the user to browse the introduction to the PCDS
Catalog which describes the catalog. He or she may browse this
section by first examining the table of contents and then jumping
to the desired page in the section. The user can display pages
sequentially by entering a carriage return (<CR>), skip to any
page by entering its page number, or exit by entering an "E".
The user may also print selected pages on the line printer.

3.1.2 Catalog Summary Query Menu

The second option on the CATALOG Menu is the PCDS Catalog
Summary Query Menu, Figure 3-3. This menu provides the user with
a summary of information about the data sets described in the
PCDS Catalog. Two queries have been implemented for obtaining
information from this catalog summary, SUMKEY and SUMSEC. Both
queries allow the user to specify the keywords CLIMATE PARAMETER,
LEVEL, SENSOR, and MISSION to limit the information listed.

From the Catalog Summary Query Menu the user may also access
a utility menu for displaying, printing, or deleting the
"hard-copy scratch pad" file produced by the HC option from the
inventory and summary catalog queries.

3.1.2.1 Catalog Summary Keys Query

The Summary Keys Query, SUMKEY, is designed as an
introduction to the Summary Information Query, SUMSEC, which

CATALOG Subsystem Menu

1)   Browse Catalog Introduction   (ISEC)

2)   Catalog Summary Query Menu   [SUMMARY]

3)   Browse Climate Parameter Data Set Descriptions (PSEC)

4)   Browse Radiance Data Set Descriptions   (RSEC)

Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
?

Figure 3-2. PCDS CATALOG Subsystem Menu

Catalog Summary Query Menu

1)   List Catalog Summary Keys   (SUMKEY)

2)   List Catalog Summary Information   (SUMSEC)

3)   Hardcopy Print/List Menu   [UTILITY]

Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
?

Figure 3-3.   CATALOG Summary Query Menu

provides a much larger volume of information. SUMKEY simply
lists the unique combinations of the Climate Parameter, Level,
Sensor, and Mission keywords contained in the catalog. This
query provides the user with information needed to determine
which keywords to set for SUMSEC and an idea of how much output
to expect from the second query. Figure 3-4 shows the tutor
display that controls SUMKEY. The user may limit the information
listed by specifying any combination of the keys. For example,
specifying PARAM=OZONE would cause the query to return only
information for the climate parameter ozone.

3.1.2.2 Catalog Summary Information Query

     The Catalog Summary Information Query, SUMSEC, lists summary
information on the CRT about selected catalog entries. Figure
3-5 shows the tutor display that controls SUMSEC. Entries in the
Catalog Summary are accessed by 4 keys: Climate Parameter
(PARAM), Processing Level (LEVEL), Sensor (SENSOR), and Mission
(MISSION). Any combination of these keys may be set to limit the
entries returned by the query. For example, if the user
specifies PARAM=OZONE only entries describing data sets which
contain data for the climate parameter OZONE will be returned. A
value of "ALL" is the default for each of these keywords and will
indicate that entries are to be returned regardless of the value
of that particular keyword.

     The information this proc displays from the summary section
of the PCDS Catalog includes:

     — Spatial coverage and resolution
     — Temporal coverage and resolution
     — Products: tape, film and other
     — Archive status and location.

3.1.2.3 Utility Menu

     The UTILITY Menu, Figure 3-6, lists the utility programs
available for displaying, printing, and deleting the "hardcopy
scratch pad" file produced by the "HC" option for the Catalog
Summary and Inventory queries.

      One utility program is available for displaying on the
terminal all the output pages saved by using the "HC" option in
the Catalog Summary and Inventory query programs.

     Another utility program allows the user to print on the line
printer all the output pages saved with the "HC" option in the
Catalog Summary and Inventory query programs. The user may
specify whether or not the file is to be deleted once printed,
the default being DELETE.

Catalog Summary Keys Query

KEY	DESCRIPTION	PARAMETER VALUE
PARAM	List of Climate Parameters or ALL	"ALL"
LEVEL	List of Processing Levels (0, I, II, or III) or ALL	"ALL"
SENSOR	List of Sensors or ALL	"ALL"
MISSION	List of Missions or ALL	"ALL"

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

Figure 3-4. CATALOG Summary Keys Query

                    Catalog Summary Information Query

        KEY   DESCRIPTION   PARAMETER VALUE
        ---   -----------   ---------------

    PARAM   List of Climate Parameters   "ALL"
                or ALL

    LEVEL   List of Processing Levels   "ALL"
                (0, I, II, or III) or ALL

    SENSOR   List of Sensors or ALL   "ALL"

    MISSION   List of Missions or ALL   "ALL"

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

            Figure 3-5. CATALOG Summary Information Query

Utility Functions

1)   List "HC" File   (DISPLAYHC)

2)   Print "HC" File   (PRINTHC)

3)   Delete "HC" File   (DELETEHC) .

Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
?

Figure 3-6. UTILITY Menu

The third utility allows the user to delete the file containing the saved pages with the "HC" option in the Catalog Summary and Inventory query programs.

3.1.2.3.1 Display Hardcopy File Proc

The Display Hardcopy File (DISPLAYHC) procedure will display on the terminal the text file created by the "HC" option within the Catalog and Inventory query programs. The Display Hardcopy File program allows the user to use this file as a scratch pad to save information that might be useful later in the session or for a permanent copy (see PRINTHC). The saved display pages are separated by a line of asterisks. The scroll key on the VT100 terminal is used to stop and resume the listing. Pressing this key stops the listing and pressing again continues the listing.

3.1.2.3.2 Print Hardcopy File Proc

The Print Hardcopy File (PRINTHC) procedure will print on the line printer the contents of the text file created by the "HC" option in the Catalog and Inventory query programs. The file normally will then be deleted, but it may be kept by specifying DELETE=NO as a parameter for the PRINTHC procedure.

3.1.2.3.3 Delete Hardcopy File Proc

The Delete Hardcopy File (DELETEHC) procedure will delete the text file created by the "HC" option in the Catalog and Inventory query programs. Note that the PRINTHC procedure can also delete this file after printing the file.

3.1.3 Proc for Browsing Climate Parameter Data Sets

The PSEC proc allows the user to browse the section of the PCDS Catalog which describes climate parameter data sets. He or she can browse this section by examining the table of contents displayed and then jumping to the desired page in the section. The user can display pages sequentially by pressing the carriage return (<CR>), skip to any page by entering its page number, or exit by entering an "E". The user may also print selected pages on the line printer.

3.1.4 Proc for Browsing Instrument Measurement Data Sets

The RSEC proc allows the user to browse the PCDS Catalog descriptions of the instrument measurement (radiance) data sets. He or she can browse this section by first examining the table of contents and then by jumping to the desired page in the section. The user can display pages sequentially by pressing the carriage return (<CR>), skip to any page by entering its page number, or

exit by entering an "E". The user may also print selected pages on the line printer.

3.2   INVENTORY SUBSYSTEM

The INVENTORY Subsystem allows the user to query an inventory containing detailed information about the temporal coverage and data volume of data sets which are readily available via either the PCDS or other applications systems with which the PCDS interfaces. The inventory describes the data holdings of these facilities in sufficient detail to enable the systems (human or machine) which manage the data to retrieve, locate, and access the requested data.

The inventory is the lowest level in the data description hierarchy. It describes data sets at a fairly low level of data aggregation (e.g., an image, orbital strip, or physical file could comprise one data set). All data sets described in the inventory currently exist. (No planned/future products are described in the inventory.) Since the inventory is maintained online in a codified format, the user can easily query it, specifying keywords to limit the information listed.

Output from the INVENTORY Subsystem can be in the form of a tabular listing or a graphical display of the inventory contents. The INVENTORY Subsystem Menu, Figure 3-7, prompts the user to choose either the INVENTORY Query Menu or the INVENTORY Graphics Menu.

3.2.1   INVENTORY Query Menu

The INVENTORY Query Menu, Figure 3-8, offers several options which allow the user to query the online inventory. Output is provided in tabular listings. The queries have been designed to allow the user to progress from simple queries to more detailed ones by gathering information from the simpler queries. The information returned from the simpler queries can be used as inputs to the more detailed queries.

An additional option on the INVENTORY Query Menu allows the user to access the utility menu which contains programs for displaying, printing, and deleting the "hardcopy scratch pad" file produced by the HC option for the catalog summary and inventory queries. (See Section 3.1.2.3.)

3.2.1.1   PARMS Query

The PARMS query lists all of the climate parameters in the inventory. It provides the most basic view of the inventory. The PARMS query output consists of all combinations of PARM and PARAMETER in the inventory. PARM is a 1 to 8 character mnemonic indicating a climate parameter name. PARAMETER is a specific

INVENTORY Subsystem Menu

-1)   Inventory Query Menu   [INVQ]

2)   Inventory Graphics Menu   [INVG]

Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
?

Figure 3-7. INVENTORY Subsystem Menu

Inventory Query Menu

1)   List Available Climate Parameters   (PARMS)

2)   List Available Data Types   (DTYPES)

3)   List Logical Units of Data   (ITEMS)

4)   List Data Type Summary   (DTYPESUM)

5)   List Tapes by Data Type   (TAPES)

6)   List Files by Data Type   (FILES)

7)   List History of Tape Inventory   (TAPEHIS)

8)   Hardcopy Print/List Menu   [UTILITY]

Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
?

Figure 3-8.   INVENTORY Query Menu

.

description of the generic mnemonic PARM as it relates to one or more data types in the inventory. This proc uses no TAE keywords, as is shown on the tutor display in Figure 3-9.

3.2.1.2 DTYPES Query

The DTYPES query lists the data types (DTYPE) with their corresponding logical record types (ITEM) and climate parameters (PARM and PARAMETER). The user may specify one to five climate parameters (PARMs) for which to search. The default PARM is "ALL". Therefore, by default this query returns information about all data types described in the inventory, regardless of the parameters represented by the data. The tutor display for this proc is shown in Figure 3-10.

3.2.1.3 ITEMS Query

The ITEMS query lists information describing logical record types (ITEMs). This information consists of:

- full name for the logical record type (ITEM)
- length of the logical record in bytes
- data type (DTYPE)
- climate parameter (PARM) contained within the logical record type

The tutor display for this query is shown in Figure 3-11. The user may specify one to five data types (DTYPEs) and/or one to five logical record types (ITEMs). The defaults are "ALL".

3.2.1.4 DTYPESUM Query

The DTYPESUM query lists an inventory summary of one or more data types. The summary consists of:

- tape count
- file count
- minimum time of data inventoried
- maximum time of data inventoried
- minimum orbit of data inventoried
- maximum orbit of data inventoried
- for each data type requested, a table showing the data type (DTYPE), climate parameter name (PARM), climate parameter description (PARAMETER), logical record type (ITEM) and sensor (SENSOR).

The user may select which data type summaries are to be listed by setting DTYPE to a list of one to five data types and/or by setting PARM to a list of one to five climate parameters. The defaults are "ALL". The tutor display for this query is shown in Figure 3-12.

Climate Parameters Query

THIS PROC HAS .NO PARAMETERS

Ènter RUN, HELP, or EXIT.
?

Figure 3-9. INVENTORY PARMS ·Query

                              DTYPES Query

        KEY   DESCRIPTION   PARAMETER VALUE
        ---   -----------   ---------------

    PARM   List of Climate Parameter   "ALL"
                Mnemonics or ALL

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

Figure 3-10. INVENTORY DTYPES Query

                                ITEMS Query

    KEY   DESCRIPTION   PARAMETER VALUE
    ---   -----------   ---------------

DTYPE   List of Data Types or ALL   "ALL"

ITEM   List of Logical Record Types   "ALL"
            or ALL

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

Figure 3-11. INVENTORY ITEMS Query

DTYPESUM Query

KEY	DESCRIPTION	PARAMETER VALUE
PARM	List of Climate Parameter Mnemonics or ALL	"ALL"
DTYPE	List of Data Types or ALL	"ALL"

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

Figure 3-12. INVENTORY DTYPESUM Query

3.2.1.5 TAPES Query

The TAPES Query returns information about tapes described in the inventory, grouping them by data type. The following information is returned for each data type:

  - climate parameters and corresponding mnemonics
  - mnemonics for available logical record types
  - missions and sensors

For each tape of the data type the query then returns the following:

  - tape ID
  - orbit coverage
  - temporal coverage
  - generation date and inventory date and time
  - file count

The user may specify either or both a climate parameter mnemonic (PARM) and a data type (DTYPE), and must specify a start time (START) and stop time (END). The latter requirement was made in order to limit the volume of information returned. The tutor display for this proc is shown in Figure 3-13. Note that the display consists of two pages, or terminal screens.

3.2.1.6 FILES Query

The FILES query lists information about each file of a data set that contains data within a specified time range. The file information is further divided into information for each different logical record type (ITEM) in each file. The information listed consists of:

  - tape ID
  - file number
  - logical record type
  - number of logical records of this type in the file
  - data time range of this logical record type in this file
  - data orbit range of this logical record type in this file
  - number of bytes of this logical record type in this file (number of records times logical record length).

At the end of the query, FILES lists a summary showing the total length in bytes of all logical record types and files listed.

The user must specify a data type (DTYPE), a starting time (START), and an ending time (END). The user may specify one to five climate parameters (PARM) and/or logical record types (ITEM). The default for PARM and ITEM is "ALL".

                              TAPES Query

        KEY   DESCRIPTION   PARAMETER VALUE
        ---   -----------   ---------------

    PARM   List of Climate Parameter   "ALL"
                 Mnemonics or ALL

    DTYPE   List of Data Types or ALL   "ALL"

    START   Start Time (as YYYYMMDDHHMMSS)

    Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
    ?

                              TAPES Query

        KEY   DESCRIPTION   PARAMETER VALUE
        ---   -----------   ---------------

    END   End Time (as YYYYMMDDHHMMSS)

    Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
    ?

                    Figure 3-13. INVENTORY TAPES Query

Normally PARM and ITEM are left at their default values of
"ALL". The user should not specify both the ITEM and PARM
keywords since this is unnecessary and may result in no records
listed. The keyword ITEM may be specified for data types with
more than one logical record type. The user need specify PARM
only when it is easier to select the desired logical record types
by their contents (climate parameters).

The tutor display for this query is shown in Figure 3-14.

3.2.1.7 TAPEHIS Query (TAPEHIS)

The TAPEHIS Query will list information about tapes of
specified data types (DTYPE) with an inventory date greater than
or equal to a specified inventory date (SINCE). The user should
specify a data type (DTYPE) and an inventory date (SINCE).

The tutor display for the query is shown in Figure 3-15.
The default for DTYPE is ALL. The user must specify SINCE, as
there is no default for this keyword. The information returned
for each tape by this query consists of the following:

- tape ID
- file count
- data type
- time range covered
- date and time inventoried
- name of person inventorying tape

3.2.1.8 The Utility Menu

See Section 3.1.2.3 for details of this menu.

3.2.2 INVENTORY Graphics Menu

The INVENTORY Graphics Menu, Figure 3-16, provides access to
the procedure for creating graphical summaries of the contents of
the PCDS Inventory and to the procedure for running the GRAPHICS
Postprocessor. The INVENTORY Graphics procedure displays
information from the inventory in the form of a line plot, bar
graph, or pie chart, and can also portray the orbital path over
the earth of the mission/satellite which collected the data. The
plots generated by this procedure can be displayed on any of the
graphics display devices supported by the PCDS, or saved for
later retrieval via the GRAPHICS Postprocessor.

3.2.2.1 INVENTORY Graphics Proc

The INVENTORY Graphics Proc generates graphical displays of
inventory information. Possible outputs include a line plot of

                                   FILES Query

        KEY   DESCRIPTION   PARAMETER VALUE
        ---   -----------   ---------------

        DTYPE   Data Type

        START   Start Time (as YYYYMMDDHHMMSS)

        END   End Time (as YYYYMMDDHHMMSS)

        ITEM   List of Logical Record Types   "ALL"
                   or ALL

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

                                   FILES Query

        KEY   DESCRIPTION   PARAMETER VALUE
        ---   -----------   ---------------

        PARM   List of Climate Parameter   "ALL"
                   Mnemonics or ALL

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

                        Figure 3-14. INVENTORY FILES Query

TAPEHIS Query

KEY	DESCRIPTION	PARAMETER VALUE
DTYPE	List of Data Types or ALL	"ALL"
SINCE	Inventory Time (YYYYMMDDHHMMSS)	

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

Figure 3-15. INVENTORY TAPEHIS Query

INVENTORY Graphics Menu

1)   Summarize Inventory Contents Graphically   (INVGRAPH)

2)   Run Graphics Post Processor   (PPOSTPROC) .

Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
?

Figure 3-16. INVENTORY Graphics Menu

data rate as a function of time, a pie or bar chart of data distribution in time, data coverage overlayed on a world map, and a scatter diagram of file sizes as a function of start time. The user controls the appearance and contents of these plots with the tutored display depicted in Figure. 3-17. By setting the appropriate keywords the user selects the data type and the start and end times for the information to be extracted from the inventory, and the time distribution increment to be used for displaying that information. Other keywords allow the user to specify the plot type, the character font for labels on the plot, and the display device or plot file name for the output. The system will automatically retrieve the information about the data specified by the user and display it in the form requested.

3.2.2.2 GRAPHICS Postprocessor

Though access to the postprocessor is provided within the INVENTORY Subsystem, it is described more fully in the section on the GRAPHICS Subsystem. See Section 3.5.3 for the details.

3.3 DATA ACCESS SUBSYSTEM

The DATA ACCESS Subsystem allows the user to access data sets available through the PCDS and select data of interest using criteria such as time and geographic location. This subsystem consists of three procedures as indicated by the menu in Figure 3-18. One allows the user to copy and list selected portions of available climate data sets, and to create a Climate Data File (CDF) which is in a format independent of data type. A CDF can be used as input to other PCDS Subsystems, such as GRAPHICS. The other procedures allow the user to access Climate Data Files created during previous runs of DATA ACCESS or via other methods.

3.3.1 COPY/LIST Procedure

The COPY/LIST Procedure, DA, allows the user to copy and/or list climate data from tapes available through the PCDS tape library (referred to as "PCDS tapes"), from tapes created by previous runs of DATA ACCESS (referred to as "user tapes"), or from disk data sets created in previous runs of DATA ACCESS.

The user specifies the data type (DTYPE) of the input data set and whether to run this proc in interactive or batch mode (MODE = "I" or "B"). He or she also specifies the type of output to be generated by setting the keywords COPY, LIST, and BUILD appropriately. The tutored display for listing these keywords is shown in Figure 3-19. The user may copy the data set to tape or disk using a format similar to the input data set, generate a listing of the contents of the input data set, and/or create a CDF containing a copy of the input data set in a data-independent

                              Inventory Graphics

        KEY   DESCRIPTION   PARAMETER VALUE
        ---   -----------   ---------------

DTYPE   Data Type

PLOTTYPE   Type of plot ("L"= LINE GRAPH,   "L"
                "B"= BAR CHART, "P"= PIE CHART,
                "M"= MAP PLOT, "I"= ITEM SIZE)

START   Plot Start Time   "19700101000000"
                (as YYYYMMDDHHMMSS)

END   .Plot End Time   ""
                (as YYYYMMDDHHMMSS)

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

                              Inventory Graphics

        KEY   DESCRIPTION   PARAMETER VALUE
        ---   -----------   ---------------

INCREMNT   Time distribution increment.   ""
                (""= null,"D"=day,"W"=week,
                "M"=month,"Y"=year.)

FONT   Character Font for Labelling   "FAST"
                (FAST, LOW, MEDIUM, HIGH)

TERMINAL   Plotting Device   "YES"
                (YES = current terminal)

HARDCOPY   Hardcopy output of the plot   "NO"

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

                Figure 3-17. INVENTORY Graphics Proc

DATA ACCESS Subsystem Menu

1) Copy/List Data Set   (DA)

2) List a Climate Data File   (CDFLIST)

3) Produce Subset CDF   (CDFSUBSET)

Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
?

Figure 3-18. DATA ACCESS Subsystem Menu

                              COPY/LIST PROCEDURE

       KEY   DESCRIPTION   PARAMETER VALUE
       ---   -----------   ---------------

    DTYPE   PCDS Data Type

    MODE   Run Mode   "I"
               ("I"=Interactive, "B"=Batch)

    COPY   Copy Request   "Y"
               ("Y"=Yes, "N"=No)

    LIST   List Request   "Y"
               ("Y"=Yes, "N"=No)

    BUILD   CDF Build Request   "N"
               ("Y"=Yes, "N"=No)

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

                              COPY/LIST PROCEDURE

       KEY   DESCRIPTION   PARAMETER VALUE
       ---   -----------   ---------------

    TIMETYPE   Time Filtering Method   "N"
               ("N"=Non-periodic,
                "C"=Calendar-periodic,
                "A"=Absolute-periodic)

                              \

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

                  Figure 3-19. Copy/List Procedure

format. The CDF can be used as input to the powerful routines of the DATA MANIPULATION and GRAPHICS Subsystems.

Once these specifications have been made and the user runs the DA proc, the user is tutored for data type specific filters which limit the volume of output from the proc. These filters include temporal and geographic windows, where appropriate.

3.3.2 List Climate Data File Proc

Output from DATA ACCESS may include a Climate Data File (CDF), a file formatted independent of the data type of the input. The Climate Data File Listing Procedure, CDFLIST, allows the user to obtain a listing of a CDF created in a previous run of the DATA ACCESS Subsystem or via other means. This listing can be viewed on the CRT or via hardcopy. The listing can represent any portion of the CDF. If the user chooses to display the listing on a CRT, he or she can use the BROWSE program to examine the listing file on a page by page basis, and can print the file or part of it as desired.

The user selects a CDF by specifying RUNNAME, the name of the CDF. The tutored display prompting for this keyword is shown in Figure 3-20. The program will then prompt the user to select items from the CDF to appear in the listing. Listings will have a columnar format, with optional pagination and optional date/ time at the top of each page. Each line of the listing will contain a sequential line number (SEQ) and the EPOCH (i.e., time) field. The user can select the format which will be used to display or print the EPOCH on the listing. The format can be chosen to be the complete EPOCH (20 columns) or one of six different abbreviated formats, depending on the time range of the data and the desired level of precision.

It is the responsibility of the user to select a subset of data fields to be listed from the total set contained in the CDF. This subset is selected, one field at a time, using TAE dynamic tutored displays. Approximately .six fields can be listed on the CRT, and ten on the line printer.

CDFLIST is available in both the DATA ACCESS and DATA MANIPULATION Subsystems.

3.3.3 Produce Subset CDF Proc

The Climate Data File (CDF) Subsetting Utility, CDFSUBSET, allows the user to create a new CDF which is a subset of an existing CDF. The new CDF may contain any or all fields from the original CDF, as well as data records that have been filtered.

The user selects a "parent" CDF by specifying its name for the tutored parameter RUNNAME. The tutored display prompting for

3-29

                    Climate Data File (CDF) Display/Listing Procedure

    KEY   DESCRIPTION   PARAMETER VALUE
    ---   -----------   ---------------

RUNNAME   Runname (1-8 character name,
            or a fully qualified filename)

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

Figure 3-20. CDF Display/Listing Utility

this keyword is shown in Figure 3-21. Next, CDFSUBSET prompts for
a name for the subset CDF. Then, the user selects which of the
climate variables from the parent CDF to include in the subset,
and the user selects filters on the climate variables for the
subsetting operation. These filters set windows to include or
exclude a range of values, vary the end points of the range, and
select every Nth value of the range.

The new CDF can be used as input to any proc in the DATA
MANIPULATION or GRAPHICS Subsystems. A subset CDF could be input
to a subsequent run of CDFSUBSET, for example.

CDFSUBSET is available in both the DATA ACCESS and DATA
MANIPULATION Subsystems.

3.4 DATA MANIPULATION SUBSYSTEM

The DATA MANIPULATION Subsystem allows the user to access
the data-independent Climate Data Files (CDFs) created through
the DATA ACCESS Subsystem, through the DATA MANIPULATION
Subsystem itself, or by software independent of the PCDS. This
subsystem allows the user to obtain a listing of a CDF, to
produce a subset of a CDF, to perform statistical and
mathematical operations on the contents of a CDF, and to generate
an ungridded CDF from the contents of a gridded CDF. The user
selects one of these functions via the DATA MANIPULATION
Subsystem Menu, shown in Figure 3-22.

3.4.1 List Climate Data File Proc

See Section 3.3.2 for details of this proc.

3.4.2 Produce Subset CDF Proc

See Section 3.3.3 for details of this proc.

3.4.3 Combine CDF Fields Proc

The Combine CDF Fields Proc, CDFCOMBIN, generates a new CDF
containing the data fields from an input CDF plus new fields
derived by algebraically combining fields from the input CDF.
The user may specify any algebraic combination of the fields in a
CDF.

The first tutor display for CDFCOMBIN, shown in Figure 3-23,
prompts the user for the name of the input CDF, a name for the
output CDF, and the maximum number of new fields to be generated.
The next tutor display, shown in Figure 3-24, prompts the user
for the formula by which to generate each new field. The user
chooses a name and mnemonic for the new field, specifies its

PCDS Climate Data File (CDF) Subsetting Utility

KEY	DESCRIPTION	PARAMETER VALUE

RUNNAME   (Runname of Data Access Run
                     creating CDF, 1-8 characters,
                     or,a fully qualified filename,
                     up to 80 characters.)

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

Figure 3-21. CDF Subsetting Utility

DATA MANIPULATION Subsystem Menu

1)   List a Climate Data File   (CDFLIST)

2)   Produce Subset CDF   (CDFSUBSET)

3)   Combine CDF Fields   (CDFCOMBIN)

4)   Ungrid a Data Set   (UNGRIDCDF)

5)   Average a Data Set   (AVECDF)

Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
?

Figure 3-22.   DATA MANIPULATION Subsystem Menu

```
TUTOR DISPLAY:  CDFCOMBIN                                              PAGE # 1.
                            Combining CDF Fields

        KEY             DESCRIPTION                   PARAMETER VALUE
        ---             -----------                   ---------------

     INCDF           Input CDF Name
                     (File name with no extension)


     OUTCDF          Output CDF Name
                     (File name with no extension)


     MAXNEW          Maximum Number of New Fields              10




Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?
```

Figure 3-23. Combine CDF Fields Proc

```
TUTOR DISPLAY:   CALCULATE                                           PAGE # 1+
                 CDF Manipulation Utility - New Field Definition

        KEY            DESCRIPTION                 PARAMETER VALUE
        ---            -----------                 ---------------


  COUNT         Field Definition Number                        1
                (Reset to 0 to abort)

  MNEMONIC      New Field Mnemonic              ""

  NAME          New Field Name                  ""

  UNITS         Engineering Units               ""

  FORMAT        Fortran Format For Display      ""



Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?




TUTOR DISPLAY:   CALCULATE                                           PAGE # 2+
                 CDF Manipulation Utility - New Field Definition

        KEY            DESCRIPTION                 PARAMETER VALUE
        ---            -----------                 ---------------


  TYPE          DATA TYPE                       "R4"
                (I2,I4,R4,R8, or
                an input mnemonic)







Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?
```

Figure 3-24. Calculate new CDF Field

                CDF Manipulation Utility – New Field Definition

      KEY   DESCRIPTION   PARAMETER VALUE
      ———   ————————————   ——————————————

VALUE   EXPRESSION FOR FIELD VALUE (1)   ""
              (Free format, up to 10   (2)   ""
              quoted lines of 29 columns (3)   ""
              each,using constants, input(4)   ""
              mnemonics, arithmetic   (5)   ""
              operators, and functions   (6)   ""
              such as sin, cos, tan, exp,(7)   ""
              log, asin, acos, atan.)   (8)   ""
                                           (9)   ""
                                          (10)   ""

INMNEM   ·   (Use for TAE help on   ""
              input field mnemonics)

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

                    Figure 3-24. Calculate new CDF Field (continued)

engineering units, internal format, and display formats, and
defines the algebraic expression which generates its contents.
This formula uses the mnemonics for the fields already present in
the CDF. The user can find out which mnemonics are valid by
obtaining HELP on the keyword INMNEM. The system will display
the mnemonics for those fields already present in the input CDF.
After the user enters the "RUN" command, the system validates the
input and issues a prompt for correction if the user has entered
an invalid mnemonic.

Once valid definitions have been entered for each of the new
fields, the PCDS will create the output CDF. Each record in the
new CDF will contain the fields from the input CDF, and the
new data derived by combining those fields.

3.4.4 Ungrid CDF Proc

The Ungrid Climate Data File (CDF) Utility, UNGRIDCDF, is a
general-purpose routine for ungridding the gridded fields of a
CDF. The input file is a gridded CDF (either non-profile or
profile data). The output file will be a non-gridded CDF which
has a latitude and a longitude associated with each grid point.
All non-gridded fields in the input CDF are also retained in the
output CDF. This proc is useful for permitting the comparison of
a gridded CDF with a non-gridded CDF, or for using latitude and
longitude as axes or filters in the GRAPHICS Subsystem.

The first tutor display for UNGRIDCDF, shown in Figure 3-25,
prompts the user for the name of the gridded CDF (RUNNAME1) and a
name for the ungridded CDF (RUNNAME2) to be generated. The next
tutor display prompts the user to specify one climate parameter
(CLIPAR) for ungridding from a list of parameters available in
the gridded CDF. This is requested to permit the user to select
the desired parameter since different gridded records may contain
different climate parameters. The output CDF records will
contain all the non-gridded data from the parent CDF, as well as
the selected gridded parameter. Each gridded field in the parent
CDF will become a non-gridded triplet of latitude, longitude and
climate parameter value in the output CDF.

UNGRIDCDF will terminate if there are no gridded fields in
the parent CDF, if an input record contains two or more gridded
climate parameters, or if the user requests an exit.

3.4.5 CDF Averaging Proc

The CDF Averaging Proc, AVECDF, allows users to apply
statistics to CDF elements. Currently, this utility supports the
calculation of means and variances of the input data. Two
methods for averaging are provided. One is simply a data
compression. A specified number of data points is averaged and
the statistics calculated. The other method allows the

                General Routine to Ungrid Climate Data Files(CDFs)

    KEY   DESCRIPTION   PARAMETER VALUE
    ---   -----------   ---------------

RUNNAME1   Runname of the input CDF to be
            ungridded

RUNNAME2   Runname of the output nongridded
            CDF

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

Figure 3-25.   UNGRIDCDF Utility

calculation of the statistics based on a regular time period, such as monthly or daily means.

The tutored display for AVECDF, Figure 3-26, prompts the user for the name of the input CDF, a name for the new CDF, whether to compress the data by a number of data points or by a specified time period, and whether to run the proc in batch or interactive mode. Further tutored displays prompt for the time window within which to compress the data, and for the compression factors (number of data points or time-periodic, according to the method selected).

The output CDF will contain the average of values from the input CDF, as well as other statistical information such as the variance and count of the input data.

3.5 GRAPHICS SUBSYSTEM

The GRAPHICS Subsystem allows the user to produce graphical displays of any data contained in a data-independent Climate Data File (CDF). Output products include x-y plots, histograms, surface diagrams, contour maps, and pseudo-color images (future enhancement) which will help the user to examine climate data in more detail.

The GRAPHICS Subsystem Menu provides the user with three options, as shown in the menu display, Figure 3-27. The first allows the user to display two-dimensional representations of data as histograms, scatter diagrams, or vector plots. Another allows the user to display three-dimensional representations of data as contour plots, surface diagrams, or pseudo-color images (future enhancement). This option also supports the display of map grids with outlines of the world coastlines in various map projections. The two- and three-dimensional non-mapping graphics procedures support time histories and atmospheric profiles. All these routines provide a large number of options to tailor the output to specific requirements for format, quality and content.

The third option from this menu provides a postprocessing capability. It permits the user to redisplay graphical output from the other procedures on a variety of different types of output devices. Available options include combining plots on a page and specifying output media and size.

3.5.1 Two-dimensional Graphics Proc

The Two-dimensional Graphics Proc, TWODGRAPH, plots a two-dimensional representation of data contained in a CDF. Currently the PCDS supports three types of two-dimensional plots (PLOTTYPES): scatter diagram (default), vector plot, and histogram. These can be used to display the relationship between two climate parameters, with or without an atmospheric profile, or the distribution of observations for a particular parameter.

CDF Averaging

KEY	DESCRIPTION	PARAMETER VALUE
RUNNAME	PCDS runname of input CDF (e.g., DRD0:[TEST]OZONE)	
NEWNAME	New filename for the output CDF (e.g., DRD0:[TEST]AVEOZONE)	
METHOD	(1 - Compress data by a factor, 2 - Average data in a time period)	2
MODE	(I - interactive, B - batch)	"I"

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

Figure 3-26. CDF Averaging Proc

GRAPHICS Subsystem Menu

1)   Graph Two-Dimensional Data   (TWODGRAPH)

2)   Three-Dimensional Graphics Menu   [THREEDGRF]

3)   Run Graphics Post Processor   (PPOSTPROC)

Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
?

Figure 3-27. GRAPHICS Subsystem Menu

The first tutored display for TWODGRAPH, Figure 3-28, prompts the user for the name of the CDF to be plotted and whether to display the plot at the user terminal or output it to a file.

The next tutored display, Figure 3-29, prompts the user for the climate variables to be plotted on the x and y axes, and provides an option for a profile plot. The online help lists the data variables available in the selected CDF to be used as axes in the plot. These variables can also be used as filters to limit the volume of data displayed by specifying the appropriate keyword in the filter selection tutor, FLTRSLCT, shown in Figure 3-30.

The tutored display shown in Figure 3-31 prompts for the keywords which control the format of the plot. The user selects a TITLE for labeling the plot and determines whether to reset the other keywords or leave them set at their defaults. The COORDSYS keyword provides a choice of rectangular or polar coordinates. SCALESYS provides several options for linear or logarithmic scales on the axes. CURVEFIT allows the display of a least-squares fit to the data points, with a choice of linear, polynomial, or cubic splines algorithms. STATS allows for the display of mean and standard deviation for the y-axis variable, and allows for averaging of the data prior to plotting. The user can select one of several labeling styles by specifying FONT appropriately. HARDCOPY provides an option for secondary output for the graphics image: a graphics terminal's hardcopy capability (if available) or an online file for storage of the graphics image for later redisplay by the GRAPHICS Postprocessor (see Section 3.5.3).

Depending on the choice of PLOTTYPE, the user is tutored for other keywords to control the appearance of the plot. For example, if the user selects a histogram, the system will prompt for the number of bins to display. Other tutored displays will prompt the user for the selection of filter ranges, profile levels, or terminal type, as appropriate.

After generating the requested plot, the system prompts the user for a continuation code that allows for replotting of the same data, changing either the data or filters to be plotted, or terminating the plotting and returning to the menu.

3.5.2 Three-dimensional Graphics Menu

The Three-dimensional Graphics Menu, THREEDGRF, Figure 3-32, offers the user a choice of two programs, one for non-mapped displays and one for mapped displays. The user selects an option based on the type of data contained in the CDF to be graphed.

                        Two-dimensional Graphics

     KEY   DESCRIPTION   PARAMETER VALUE
     ---   -----------   ---------------

RUNNAME   PCDS Data Access Run Name

TERMINAL .Selection of plotting device   "YES"

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

                 Figure 3-28. Two-dimensional Graphics Proc

```
TUTOR DISPLAY:   ELEMENT                                              PAGE # 1+
                 Selection of Climate Data Elements for Plotting

    KEY            DESCRIPTION                      PARAMETER VALUE
    ---            -----------                      ---------------

XAXIS        Plotting quantity for the
             independent axis

NUMCURVE   Number of Curves                                   1




Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?




TUTOR DISPLAY:   ELEMENT                                              PAGE # 2+
                 Selection of Climate Data Elements for Plotting

    KEY            DESCRIPTION                      PARAMETER VALUE
    ---            -----------                      ---------------
                                                        ____

YAXIS        Plotting quantity for the
             dependent axis




PROFILE    Selection of a plot to be of a                     0
           profile

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?
```

Figure 3-29. Plotting Quantities for Two-dimensional Plots

TUTOR DISPLAY: ELEMENT   PAGE # 3.
                Selection of Climate Data Elements for Plotting

        KEY   DESCRIPTION   PARAMETER VALUE
        ---   -----------   ---------------

ERRORBAR   Error quantities for plot   0
                                                                  0
                                                                  0
                                                              . 0
                                                                  0
                                                                  0
                                                                  0
                                                                  0
                                                                  0
                                                                  0

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

Figure 3-29. Plotting Quantities for Two-dimensional Plots (continued)

TUTOR DISPLAY: FLTRSLCT   PAGE # 1.
                           Selection of Filters on Climate Data

        KEY   DESCRIPTION   PARAMETER VALUE
        ---   -----------   ---------------

NUMBFILT   Number of Filters   0

FILTERS   Elements selected for filters   0
                                                              0
                                                              0
                                                              0
                                                              0
                                                              0
                                                              0
                                                              0
                                                              0
                                                              0

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

Figure 3-30. Filter Selections for Plots

Two-dimensional Plotting of Climate Parameters

KEY	DESCRIPTION	PARAMETER VALUE
TITLE	Title of the plot	
PLOTTYPE	Type of plot to be made	"SCATTER DIAGRAM"
SORT	Sorting of data	"NO"
COORDSYS	Coordinate system for the plot	"RECTANGULAR"
SCALESYS	Scaling system for the plot	1
CURVEFIT	Curve fits to the data	"NONE"

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

Two-dimensional Plotting of Climate Parameters

KEY	DESCRIPTION	PARAMETER VALUE
STATS	Statistics with the plot	"NONE"
FONT	Character font for labelling	"FAST"
HARDCOPY	Hardcopy output of the plot	"NO"

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

Figure 3-31. Two-dimensional Plot Options

Three-Dimensional Graphics

1) Non-mapping Graphics   (THREEDGRF)

2) Mapping Graphics   (MAPGRAPH)

Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
?

Figure 3-32. Three-dimensional Graphics Menu

3.5.2.1   Three-dimensional Non-Mapped Graphics Proc

The first of the three-dimensional plotting routines, THREEDGRF, plots non-mapped data sets. The process generates three-axis plots of any set of triples from the CDF, with two user-selected climate parameters for the independent axes and a third for the dependent axis, or z-axis.

Currently the PCDS supports two types of three-dimensional plots (PLOTTYPES): contour plot (default) and surface diagram. These can be used to display three climate parameters or a specific atmospheric profile against another parameter with the y-axis defaulting to the profile level.

Figure 3-33 shows the tutor display for THREEDGRF. The options for this proc parallel those for TWODGRAPH, Section 3.5.1. The user specifies the name of the CDF to be plotted and whether to display the plot at the user terminal or to a file. The next tutor display, Figure 3-34, prompts the user for the climate variables to be plotted on the x, y, and z axes of the plot, and provides an option for a profile plot. The online help lists the data variables available in the selected CDF to be used as axes in the plot. These variables can also be used as filters to limit the volume of data displayed by specifying the appropriate keyword in the filter selection tutor, FLTRSLCT, shown in Figure 3-30. (This is the same tutor display that appears in the two-dimensional graphics proc.)

The tutor display shown in Figure 3-35 prompts for keywords which control the format of the plot. The user selects a TITLE for labeling the plot and determines whether to reset the other keywords or leave them set at their defaults. PLOTTYPE allows the user to select either a surface diagram or a contour plot. The COORDSYS keyword provides a choice of rectangular or polar coordinates. SCALESYS provides several options for linear or logarithmic scales on the axes. There are several GRIDDING options to interpolate the CDF points into the graph cells: simple binning (BINNING or BINNING1) for large or dense data sets, more complex binning schemes (BINNING2 and BINNING3) for less robust data, and more complex interpolation schemes (LOW and HIGH resolution) for more accurate gridding. STATS allows for display of the mean and standard deviation for the z-axis. FONT and HARDCOPY have the same meaning as for TWODGRAPH.

Depending on the choice of PLOTTYPE, the user is tutored for other keywords to control the appearance of the plot. For example, the user may select the number of contour lines for a contour plot. Other tutor displays will prompt the user for the selection of filter ranges, profile levels, or terminal type as appropriate.

After generating the requested plot, the system prompts the user for a continuation code that allows for replotting of the same data, changing either the data or filters to be plotted, or terminating the plotting and returning to the menu.

                         Three-dimensional Graphics

     KEY   DESCRIPTION   PARAMETER VALUE
     ---   -----------   ---------------

RUNNAME   PCDS Data Access Run Name

TERMINAL   Selection of plotting device   "YES"

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

Figure 3-33. Three-dimensional Non-mapping Graphics Proc

                 Selection of Climate Data Elements for 3-D Plotting

         KEY   DESCRIPTION   PARAMETER VALUE
         ---   -----------   ---------------

    XAXIS   Plotting quantity for the
                 horizontal axis

    YAXIS   Plotting quantity for the
                 depth axis

    ZAXIS   Plotting quantity for the
                 vertical axis

    PROFILE   Selection of profile type   0

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

             Figure 3-34. Plotting Quantities for Three-dimensional Plots

Three-dimensional plotting of climate dataset parameters.

KEY	DESCRIPTION	PARAMETER VALUE
TITLE	Title of the plot	
PLOTTYPE	Type of plot to be made	"CONTOUR PLOT"
COORDSYS	Coordinate system for the plot	"CARTESIAN"
SCALESYS	Scaling system for the plot	1
GRIDDING	Curve fits to the data	"BINNING"
STATS	Statistics with the plot	"NONE"

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

Three-dimensional plotting of climate dataset parameters.

KEY	DESCRIPTION	PARAMETER VALUE
FONT	Character font for labelling	"FAST"
HARDCOPY	Hardcopy output of the plot	"NO"

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

Figure 3-35.   Three-dimensional Plot Options

3.5.2.2 Mapping Graphics Proc

The Mapping Graphics Proc, MAPGRAPH, permits· the generation
of surface diagrams and contour plots for climate parameters from
gridded data sets. The independent axes are latitude and
longitude in any of several standard map projections. MAPGRAPH
currently supports eleven projections: cylindrical equidistant,
Mercator, Mollweide, north and south polar equidistant, north and
south polar stereographic, north and south polar orthographic,
and eastern and western hemisphere orthographic. MAPGRAPH can
provide a world coastline overlay for each of these projections
at the user´s option.

The first tutored display for MAPGRAPH, shown in Figure 3-36,
prompts the user for name of the (mapped) CDF to be plotted, and
whether to display the plot at the user terminal or elsewhere.
The next display, Figure 3-37, prompts for a z-axis parameter
value to be plotted. The online help lists the valid values for
the ZAXIS keyword. The system then prompts for filters for the
data via the filter selection tutor, FLTRSLCT, shown in Figure
3-30. (This is the same tutored display that appears in the
two-dimensional graphics proc.) The user can filter the input on
any nongridded field in the data set, or by grid number.

The tutored display shown in Figure 3-38 provides control over
the format of the plot. The user selects a TITLE for labeling
the plot and determines whether to reset the other keywords or
leave them set at their defaults. PLOTTYPE allows the user to
select either a surface diagram or a contour plot. The COORDSYS
keyword provides a choice of rectangular or polar coordinates.
OUTLINE specifies whether to display the outline of the world
coastlines in· the plot. LATITUDE and LONGITUDE provide a
geographic window for the plot. SCALESYS provides several
options for linear or logarithmic scales on the axes. STATS
allows for display of the mean and standard deviation for the
z-axis. FONT and HARDCOPY have the same meaning as for
TWODGRAPH.

Depending on the choice of PLOTTYPE, the user is tutored for
other keywords to control the appearance of the plot. For
example, the user may select the number of contour lines for a
contour plot. Other tutored displays will prompt the user for the
selection of filter ranges or terminal type if these choices are
needed.

After generating the requested plot, the system prompts the
user for a continuation code that allows·for replotting of the
same data, changing either the data or filters to be plotted, or
terminating the plotting and returning to the menu.

3.5.3 GRAPHICS Postprocessor Proc

The GRAPHICS Postprocessor Proc, PPOSTPROC, provides the
capability for retrieval and redisplay of graphical plots

Mapping Graphics

KEY   DESCRIPTION   PARAMETER VALUE
———   ————————————   —————————————————

RUNNAME   PCDS Data Access Run Name

TERMINAL   Selection of plotting device   "YES"

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

Figure 3-36. Three-dimensional Mapping Graphics Proc

            Selection of Climate Data Elements for Mapped 3-D Plotting

    KEY   DESCRIPTION   PARAMETER VALUE
    ---   -----------   ---------------

ZAXIS   Plotting quantity for the
             vertical axis

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

            Figure 3-37. Plotting Quantities for Three-dimensional Mapping Plots

                                    Mapping Graphics

        KEY   DESCRIPTION.   PARAMETER VALUE
        ‒‒‒   ‒‒‒‒‒‒‒‒‒‒‒   ‒‒‒‒‒‒‒‒‒‒‒‒‒‒‒‒

    TITLE   Title of the plot

    PLOTTYPE   Type of plot to be made   "CONTOUR PLOT"

    COORDSYS   Coordinate system for the plot   "CYLINDRICAL EQUIDISTANT"

    OUTLINE   World coastline overlay   "YES"

    LATITUDE   Range in latitude   -90.00000
                                                              90.00000

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

                                    Mapping Graphics

        KEY   DESCRIPTION   PARAMETER VALUE
        ‒‒‒   ‒‒‒‒‒‒‒‒‒‒‒   ‒‒‒‒‒‒‒‒‒‒‒‒‒‒‒‒

    LONGITUD   Range in longitude   -180.0000
                                                             180.0000

    SCALESYS   Scaling system for the plot   1

    STATS   Statistics with the plot   "NONE"

    FONT   Character font for labelling   "FAST"

    HARDCOPY   Hardcopy output of the plot   "NO"

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?

        Figure 3-38. Three-dimensional Mapping Plot Options

generated and stored by the INVENTORY or GRAPHICS plotting software. PPOSTPROC can redisplay up to four saved plot images on one screen or hardcopy output. Because the plot images are stored online at a higher resolution than the graphics peripherals that PCDS currently supports, the resolution of the output from PPOSTPROC is limited only by the display device. PPOSTPROC allows a user to generate a plot on a fairly low resolution device for working notes, then produce a higher resolution plot or slide for presentation or publication.

The tutor display for PPOSTPROC, shown in Figure 3-39, prompts the user for the name of the plot file, where to display the output, whether to delete the saved plot file after display, what title if any to give the postprocessor output, whether to save the plot generated by this run of the postprocessor, and whether to skip initial processing of the input file to determine its contents. Subsequent tutor displays prompt the user for which plot(s) to display and in what order. PPOSTPROC will then redisplay the selected plot(s) on the chosen device.

PPOSTPROC can be invoked via the GRAPHICS Subsystem or via the INVENTORY Graphics Menu (see Section 3.2.2.2).

                            Graphics Post Processor

        KEY   DESCRIPTION   PARAMETER VALUE
        ___   _____   _____

    INFILE   Input Plot file   " "

    OUTDEV   Output device   "TERM"

    DELETE   Deletion code   "N"

    TITLE   Plot Title   " "

    SAVEPLOT   Save code for PDF format file   "N"

    Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP ·or Press RETURN to page.
    ?

                            Graphics Post Processor

        KEY   DESCRIPTION   PARAMETER VALUE
        ___   _____   _____

    SKIPREAD   Skip code for skipping the input   "N"
               file

    Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
    ?

              Figure 3-39. GRAPHICS Postprocessor Proc

BIBLIOGRAPHY

1.   <u>User's Manual for the Transportable Applications Executive
      Prototype</u>, Century Computing, Incorporated, 81-TAE-USR-
      01C, September 1982.

2.   <u>NASA Climate Data Catalog</u>, National Aeronautics and Space
      Administration, Goddard Space Flight Center/OAO
      Corporation, February 1982.

3.   <u>User Requirements for a NASA Climate Data Base Management
      System</u>, National Aeronautics and Space Administration,
      Goddard Space Flight Center/OAO Corporation, October 1979.

4.   Smith, Paul H., Lloyd A. Treinish, and Lawrence V. Novak,
      <u>Pilot Climate Data System: A State-of-the-Art Capability
      in Scientific Data Management</u>, NASA Technical Memorandum
      85115, National Aeronautics and Space Administration,
      Goddard Space Flight Center, October 1983.

GLOSSARY OF TERMS AND ACRONYMS

TERM	DEFINITION
ARC	Acronym for Applied Research Corporation
BANAT	Acronym for Beta and Aerosol Number Density Archival Tape, a data product
BTS	Acronym for Business and Technological Systems, Inc.
BUV	Acronym for Backscatter Ultraviolet, a satellite instrument
CCT	Acronym for computer compatible tape, a medium for storing data
CDF	Acronym for Climate Data File, a data-independent storage structure
CLDT	Acronym for Calibrated Located Data Tape, a data product
CLE	Acronym for Clouds-ERB, a data product
CRT	Acronym for Cathode Ray Tube, usually indicating an interactive user terminal
CSC	Acronym for Computer Sciences Corporation
DEC	Acronym for Digital Equipment Corporation
DPFL	Acronym for Detailed Profile Ozone, a data product
DZMP	Acronym for Daily Zonal Means Profile and Total Ozone, a data product
ERB	Acronym for Earth Radiation Budget, a satellite instrument
ERB-MATRIX	Abbreviated name for ERB Mapped Data Matrix tape, a data product
ERB-ZMT	Abbreviated name for ERB Zonal Means Tape, a data product
ERBM/FGGE	Abbreviated name for a data product extracted from the ERB-MATRIX tapes and reformatted for FGGE
ERBZ/FGGE	Abbreviated name for a data product extracted from the ERB-ZMT tapes and reformatted for FGGE

GLO-3

TERM	DEFINITION
FGGE	Acronym for First GARP Global Experiment (also called the Global Weather Experiment)
GARP	Acronym for Global Atmospheric Research Program
GSFC	Acronym for Goddard Space Flight Center of the National Aeronautics and Space Administration
GT100	Mnemonic for DEC VT100 terminal retrofitted for graphics display
H2623	Mnemonic for the Hewlett-Packard Model HP2623A monochromatic graphics terminal
Level 0	Raw telemetry data
Level I	Data which have been calibrated into engineering units (e.g., radiances, brightness temperatures) and located with respect to time, orbit and altitude
Level II	Climate parameters (e.g., sea surface temperature, soil moisture) at full spatial and temporal resolution
Level III	Climate parameters spatially and/or temporally averaged
NASA	Acronym for the National Aeronautics and Space Administration
NMCGRD	Abbreviated name for National Meteorological Center Daily Analyses, a data product
NOAA	Acronym for National Oceanic and Atmospheric Administration
NOAA-HB	Abbreviated name for NOAA Heat Budget data, a data product
NSSDC	Acronym for the National Space Science Data Center of NASA/GSFC
ORACLE	A relational data base management system, available commercially
OZONE-S	Abbreviated name for Total Ozone and Vertical Profile ozone from SBUV, a data product
OZONE-T	Abbreviated name for total ozone from TOMS, a data product

TERM	DEFINITION
PCDS	Pilot Climate Data System
proc	Abbreviation for procedure or process, an entity executed by TAE to perform an application or utility function
R6211	Mnemonic for Ramtek Model 6211 color graphics terminal
SAGE	Acronym for Stratospheric Aerosol and Gas Experiment, a satellite instrument
SAGE-PROF	Abbreviated name for SAGE Profiles Archival Tape a data product
SAM II	Acronym for Stratospheric Aerosol Measurement II, a satellite instrument
SAR	Acronym for Science Applications Research Corporation
SASC	Acronym for Systems and Applied Sciences Corporation
SBUV	Acronym for Solar Backscatter Ultraviolet, a satellite sensor
SMSRC	Acronym for SM Systems and Research Corporation
SSCLIMATE	Abbreviated name for World Monthly Surface Station Climatology data, a data product
T4010	Mnemonic for graphics terminals compatible with the Tektronix Model 401x series
T4014	Mnemonic for Tektronix Model 4014, 4015, and 4016 series graphics terminals
T4027	Mnemonic for Tektronix Model 4025 and 4027 graphics terminals
T4100	Mnemonic for Tektronix 4100 series terminals 4105, 4107, 4109, 4112, 4113, 4114, and 4115)
TAE	Acronym for Transportable Applications Executive, a user-friendly set of software that interacts with an end user and manages the execution of application programs
THIR	Acronym for Temperature Humidity Infrared Radiometer, a satellite instrument

TERM	DEFINITION
TOMS	Acronym for Total Ozone Mapping Spectrometer, a satellite instrument
VAS	Acronym for VISSR Atmospheric Sounder, a satellite instrument
VAS-CCT	Abbreviated name for a VAS CCTs, a data product
VAX	A trademark for a line of computers manufactured by Digital Equipment Corporation, acronym for Virtual Address Extension
VISSR	Acronym for Visible Infrared Spin Scan Radiometer, a satellite instrument
VT100	Mnemonic for DEC Model VT100 terminal
VT52	Mnemonic for DEC Model VT52 terminal

APPENDIX A

SAMPLE PCDS SCENARIO

This appendix illustrates a typical application scenario of the PCDS. This scenario should assist a new user in becoming familiar with the flow of a PCDS session, although it does not illustrate the full capabilities of the system. A user can obtain additional aid in running the system by taking advantage of the extensive online HELP facility.

In the sample scenario, the user locates and accesses Level II ozone data from the SBUV instrument on board the Nimbus-7 satellite. First the user examines the catalog to determine which data sets are of interest and are available via the PCDS. Next (s)he queries the inventory to obtain more detailed information, including the volume of data, about the available data which meet his or her criteria. Using this information, the user narrows down his or her selection criteria, and asks the system to build a Climate Data File (CDF) containing the desired data. Once this is done, the user displays a graph of the data. While this scenario depicts the user performing all these actions at one session, in actual practice (s)he might perform only some of these functions at a time. Each session can build on the results of the previous session.

In the scenario, the left side of each page depicts the screen displays; the right side provides explanatory notes. During a PCDS session, the system will display a page or screen of prompts, with one line at the bottom of the screen for the user response. User inputs for this scenario are shown on this line. In every case the user response is terminated with a carriage return (<CR>), though the <CR> is not explicitly shown in the displays. In some cases, one display will require several responses from the user. The user will enter these responses one line at a time, with each line terminated by a <CR>. In this appendix, these responses will all be shown for a single screen as if they were entered several lines at a time, though in the operating environment, the display will be updated to reflect each line as it is entered by the user.

PRECEDING PAGE BLANK NOT FILMED

```
Logging on to the PCDS VAX...

Username: SMITH

Password:

                        ...logged onto PCDS, continuing

    ***************************************************************************
    **<<<Pilot Climate Data System (PCDS) Development Facility>>>***
        ***************************************************************************


===================================================================================
System Notices:
===================================================================================

$ PCDS
```

The user begins by logging on to the PCDS VAX, reading the system notices, then invoking the PCDS software.

```
    ***************************************************************************
    *        P I L O T    C L I M A T E    D A T A    S Y S T E M        *
    *                   VERSION 2.1 - JULY 13, 1983                       *
    *                   --------------------------                        *
    *        D E V E L O P E D    B Y    G O D D A R D    S P A C E       *
    *                    F L I G H T    C E N T E R ' S                   *
    *  I N F O R M A T I O N    M A N A G E M E N T    B R A N C H        *
    ***************************************************************************


Enter terminal type (VT100, VT52, T4027, OTHER): VT100

Transportable Applications Executive Prototype

        Version 4.1000

Product of NASA/Goddard Space Flight Center Code 933

TAE APPLICATION LIBRARY SET TO PCDBMS (PCDBMS$LIB)
```

The PCDS begins by displaying a banner, then prompting the user for the type of terminal (s)he is using. There are also some system advisory messages displayed which are not depicted in this appendix. They have no effect on the operation of the system.

```
MENU DISPLAY:  ROOT                                    PAGE # 1.

                PCDS Version 2.1 Subsystems Menu


1)       CATALOG Subsystem Menu                    [ CATALOG ]

2)       INVENTORY Subsystem Menu                  [ INVENTORY ]

3)       DATA ACCESS Subsystem Menu                [ DACCESS ]

4)       DATA MANIPULATION Subsystem Menu          [ CDFUTIL ]

5)       GRAPHICS Subsystem Menu                   [ GRAPHICS ]




                                          .

Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
? 1
```

The first display shows
the PCDS Subsystem Menu
(ROOT menu). In order
to determine what data
sets might be of interest,
the user accesses the
CATALOG Subsystem.

```
MENU DISPLAY:  CATALOG                                  PAGE # 1.

                CATALOG Subsystem Menu


1)       Browse Catalog Introduction               ( ISEC )

2)       Catalog Summary Query Menu                ( SUMMARY)

3)       Browse Climate Parameter Data Set Descriptions  ( PSEC )

4)       Browse Radiance Data Set Descriptions     ( RSEC )


                          .




Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
? 2
```

The CATALOG Subsystem
Menu provides the user
with several options
for obtaining descriptions
of climate parameter data
sets. The user selects
the option for accessing
the Catalog Summary.

```
MENU DISPLAY:  SUMMARY                                          PAGE # 1.

                    Catalog Summary Query Menu


1)      List Catalog Summary Keys                      ( SUMKEY )

2)      List Catalog Summary Information               ( SUMSEC )

3)      Hardcopy Print/List Menu                       [ UTILITY ]








Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
? 2
```

The Catalog Summary Menu provides options for obtaining a list of the keywords available for accessing the Catalog Summary or obtaining short descriptive information about the data sets. In this scenario the user chooses the second option.

```
TUTOR DISPLAY:  SUMSEC                                          PAGE # 1.
                Catalog Summary Information Query

  KEY           DESCRIPTION                    PARAMETER VALUE
  ---           -----------                    ---------------

PARAM      List of Climate Parameters         "ALL"
           or ALL

LEVEL      List of Processing Levels          "ALL"
           ( 0, I, II, or III ) or ALL

SENSOR     List of Sensors or ALL             "ALL"


MISSION    List of Missions or ALL            "ALL"






Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
? PARAM = OZONE
? LEVEL = II
? SENSOR = SBUV
```

The user is then prompted via a tutor display to specify keywords to limit the amount of information returned by the query. By default, all entries in the Catalog are returned. In this scenario, the user specifies values for climate parameters, processing levels, and instruments of interest. Note that the mission is not specified. (In the operating environment, each user response overwrites the previous one and the parameter value is updated.)

```
TUTOR DISPLAY:   SUMSEC                                              PAGE # 1.
                    Catalog Summary Information Query

   KEY             DESCRIPTION                    PARAMETER VALUE
   ---             -----------                    ---------------

PARAM       List of Climate Parameters           "OZONE"
            or ALL

LEVEL       List of Processing Levels            "II"
            ( 0, I, II, or III ) or ALL

SENSOR      List of Sensors or ALL               "SBUV"



MISSION     List of Missions or ALL              "ALL"



Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
? RUN
```

The user initiates the
query for the data sets
of interest.

```
PARAMETER                     LEVEL    SENSOR      MISSION
OZONE                          II      SBUV        NIMBUS-7

     SPATIAL          Global, 40mb- 0.4mb; Horizontal: 200km x 200km,
COVERAGE/RESOLUTION  Vertical: 2.5km

     TEMPORAL             START TIME 7811 -
COVERAGE/RESOLUTION  6 days for global coverage, power on 3 days of 4, daylight
                     only; 32 sec/ observation

    TAPE PRODUCTS: Total ozone, reflectivity, mixing ratios, & layer ozone
                   amounts, scan by scan and orbit by orbit (HDSBUV or
                   OZONE-S): 1 6250-bpi tape/1 year; Compressed ozone tape
                   (CPOZ):  4 1600-bpi tapes/1 year
ARCHIVE: NSSDC & PCDS       CAT REF: OZ/BN
ARCHIVE STATUS: Two years of data available; others available in 1984

PRESS <CR> TO CONTINUE ; ENTER "HC" FOR HARDCOPY ; ENTER "EX" TO EXIT
```

The system displays
summary information
about data sets
meeting the user's
specifications. After
each page of output.
the user may look at
the next screen,
generate a hardcopy
of the screen, or
exit to the previous
menu. Here, the user
enters <CR> to continue
to the next page.

```
PARAMETER                     LEVEL    SENSOR     MISSION
OZONE                         II       SBUV       NIMBUS-7

      SPATIAL           Horizontal: global at 200km x 200km, large gaps between
COVERAGE/RESOLUTION     orbits at equator (200km wide orbital strips separated by
                        approx 2600km at equator and converging at increasing
                        latitudes); Vertical: 28 to 55km at approx 2km intervals

      TEMPORAL              START TIME 7812 - END TIME 7911
                        only; 32 sec/observation; step-mode only

     TAPE PRODUCTS: SBUV/FGGE Level II-c Ozone (SBUV/FGGE):   12 tapes
ARCHIVE: WDC-A & PCDS         CAT REF: FGGE
ARCHIVE STATUS: Available

PRESS <CR> TO CONTINUE ; ENTER "HC" FOR HARDCOPY ; ENTER "EX" TO EXIT
END OF DATA
PRESS RETURN KEY FOR MENU
```

The user notes that there
are two data sets that
meet his or her
specifications, OZONE-S
and SBUV/FGGE, and that
these are available via
the PCDS. At the end of
the listing from the query,
the user enters <CR> to
return to the Catalog
Summary Query Menu.

```
MENU DISPLAY:  SUMMARY                                           PAGE # 1.
                    Catalog Summary Query Menu


1)     List Catalog Summary Keys                   ( SUMKEY )

2)     List Catalog Summary Information            ( SUMSEC )

3)     Hardcopy Print/List Menu                    [ UTILITY ]











Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
? TOP
```

The user requests to
return to the ROOT
menu.

```
MENU DISPLAY:   ROOT                                              PAGE # 1.

                    PCDS Version 2.1 Subsystems Menu


1)      CATALOG Subsystem Menu                        [ CATALOG ]

2)      INVENTORY Subsystem Menu          ..          [ INVENTORY ]

3)      DATA ACCESS Subsystem Menu                    [ DACCESS ]

4)      DATA MANIPULATION Subsystem Menu              [ CDFUTIL ]

5)      GRAPHICS Subsystem Menu                       [ GRAPHICS ]



Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.


? 2
```

In order to obtain more detailed information about the OZONE-S data available, the user accesses the INVENTORY Subsystem.

```
MENU DISPLAY:   INVENTORY                                         PAGE # 1.

                    INVENTORY Subsystem Menu


1)      Inventory Query Menu                          [ INVQ ]

2)      Inventory Graphics Menu                       [ INVG ]







Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
? 1
```

THE INVENTORY Subsystem Menu allows the user to choose a menu listing queries which will output tabular listings or a menu for producing graphical displays of the inventory contents. The user chooses the first option.

```
MENU DISPLAY:  INVQ                                          PAGE # 1.

                    Inventory Query Menu


1)      List Available Climate Parameters              ( PARMS )

2)      List Available Data Types                      ( DTYPES )

3)      List Logical Units of Data                     ( ITEMS )

4)      List Data Type Summary                         ( DTYPESUM )

5)      List Tapes by Data Type                        ( TAPES )

6)      List Files by Data Type                        ( FILES )

7)      List History of Tape Inventory                 ( TAPEHIS )

8)      Hardcopy Print/List Menu                       [ UTILITY ]

Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
? 6
```

The INVENTORY Query Menu provides the user with a choice of various queries of the PCDS Inventory. The user chooses the FILES query, the most detailed of the inventory contents queries.

```
TUTOR DISPLAY:  FILES                                       PAGE # 1+
                            FILES Query

  KEY           DESCRIPTION                   PARAMETER VALUE
  ---           -----------                   ---------------

DTYPE       Data Type

START       Start Time (as YYYYMMDDHHMMSS)

END         End Time (as YYYYMMDDHHMMSS)

ITEM        List of Logical Record Types      "ALL"
            or ALL.




Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
? DTYPE = OZONE-S
? START = 1978110200
? END = 1978110212
```

The user is then prompted to specify keywords to limit the amount of information used by the query. The user specifies the data type as obtained from the catalog query, and also a time range of interest.

```
TUTOR DISPLAY:  FILES                                              PAGE # 1+
                            FILES Query

   KEY            DESCRIPTION                    PARAMETER VALUE
   ---            -----------                    ---------------

DTYPE      Data Type                          "OZONE-S"

START      Start Time (as YYYYMMDDHHMMSS)      "1978110200"

END        End Time (as YYYYMMDDHHMMSS)        "1978110212"

ITEM       List of Logical Record Types        "ALL"
           or ALL




Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?
```

The PCDS displays each
user choice as it is made
resulting in the screen
shown here. The "+"
after the page number
indicates that there are
additional screen displays
for this tutor. The user
presses <CR> to see the
next page.

```
TUTOR DISPLAY:  FILES                                              PAGE # 2.
                            FILES Query

   KEY            DESCRIPTION                    PARAMETER VALUE
   ---            -----------                    ---------------

PARM       List of Climate Parameter           "ALL"
           Mnemonics or ALL







Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
? RUN
```

The user need not specify
the keyword shown on this
page, so (s)he initiates
the query for the data type
and the time range specified.

TAPEID	FILE	ITEM	NUMBER OF ITEMS	TIME RANGE OF ITEM START/END	ORBIT RANGE	LENGTH IN BYTES
P0556	19	SCAN	100	1978/11/01 23:12:42	120	82800
				1978/11/02 00:05:30	120	
P0556	20	SCAN	98	1978/11/02 00:56:42	121	81144
				1978/11/02 01:49:30	121	
P0556	21	SCAN	99	1978/11/02 02:40:42	122	81972
				1978/11/02 03:33:30	122	
P0556	22	SCAN	100	1978/11/02 04:24:42	123	82800
				1978/11/02 05:17:30	123	
P0556	23	SCAN	93	1978/11/02 06:09:14	124	77004
				1978/11/02 07:01:30	124	
P0556	24	SCAN	100	1978/11/02 07:53:14	125	82800
				1978/11/02 08:46:02	125	
P0556	25	SCAN	100	1978/11/02 09:37:14	126	82800
				1978/11/02 10:30:02	126	

PRESS <CR> TO CONTINUE ; ENTER "HC" FOR HARDCOPY ; ENTER "EX" TO EXIT

The system displays information about the data requested. The user studies the output and mentally refines the request in order to reduce the data volume. The user presses <CR> to see additional pages of output.

TAPEID	FILE	ITEM	NUMBER OF ITEMS	TIME RANGE OF ITEM START/END	ORBIT RANGE	LENGTH IN BYTES
P0556	26	SCAN	100	1978/11/02 11:21:14	127	82800
				1978/11/02 12:14:02	127	

TOTAL NUMBER OF FILES= 8   TOTAL NUMBER OF BYTES= 654120

PRESS <CR> TO CONTINUE ; ENTER "HC" FOR HARDCOPY ; ENTER "EX" TO EXIT

PRESS RETURN KEY FOR MENU

The user presses <CR> to return to the menu.

```
MENU DISPLAY:  INVQ                                        PAGE # 1.
                    Inventory Query Menu


1)      List Available Climate Parameters          ( PARMS )

2)      List Available Data Types                  ( DTYPES )

3)      List Logical Units of Data                 ( ITEMS )

4)      List Data Type Summary                     ( DTYPESUM )

5)      List Tapes by Data Type                    ( TAPES )

6)      List Files by Data Type                    ( FILES )

7)      List History of Tape Inventory             ( TAPEHIS )

8)      Hardcopy Print/List Menu                   [ UTILITY ]

Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
? TOP
```

The user requests to
return to the ROOT Menu.

```
MENU DISPLAY:  ROOT                                        PAGE # 1.
                    PCDS Version 2.1 Subsystems Menu

1)      CATALOG Subsystem Menu                     [ CATALOG ]

2)      INVENTORY Subsystem Menu                   [ INVENTORY ]

3)      DATA ACCESS Subsystem Menu                 [ DACCESS ]

4)      DATA MANIPULATION Subsystem Menu           [ CDFUTIL ]

5)      GRAPHICS Subsystem Menu                    [ GRAPHICS ]




Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
? 3
```

In order to obtain actual
data, the user selects the
DATA ACCESS Subsystem.

```
MENU DISPLAY:   DACCESS                                          PAGE # 1.

                    DATA ACCESS Subsystem Menu


1)    Copy/List Data Set                            ( DA )

2)    List a Climate Data File                      ( CDFLIST )

3)    Produce Subset CDF                            ( CDFSUBSET )







Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
? 1
```

The DATA ACCESS Subsystem
Menu contains several
options for accessing data.
The user selects the option
which will allow him or her
to copy data from its
original format to a CDF,
which has a data-independent
format which can be read by
two other PCDS Subsystems.

```
TUTOR DISPLAY:   DA                                             PAGE # 1+
                        COPY/LIST PROCEDURE

   KEY           DESCRIPTION                      PARAMETER VALUE
   ---           -----------                      ---------------

DTYPE      PCDS Data Type

MODE       Run Mode                               "I"
           ("I"=Interactive, "B"=Batch)

COPY       Copy Request                           "Y"
           ("Y"=Yes, "N"=No)

LIST       List Request                           "Y"
           ("Y"=Yes, "N"=No)

BUILD      CDF Build Request                       "N"
           ("Y"=Yes, "N"=No)


Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
? DTYPE = OZONE-S
? COPY = N
? LIST = N
? BUILD = Y
```

The user is then prompted
to specify keywords to
control the copy function.
The user specifies the data
type of the input data set
and the type of output
needed (a CDF with no copy
or listing).

```
TUTOR DISPLAY:   DA                                          PAGE # 1+
                          COPY/LIST PROCEDURE

    KEY            DESCRIPTION                  PARAMETER VALUE
    ---            -----------                  ---------------

DTYPE      PCDS Data Type                   "OZONE-S"

MODE       Run Mode                         "I"
           ("I"=Interactive, "B"=Batch)

COPY       Copy Request                     "N"
           ("Y"=Yes, "N"=No)

LIST       List Request                     "N"
           ("Y"=Yes, "N"=No)

BUILD      CDF Build Request                "Y"
           ("Y"=Yes, "N"=No)


Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?
```

The user enters a <CR> to view the next screen of the tutor display.

```
TUTOR DISPLAY:   DA                                          PAGE # 2.
                          COPY/LIST PROCEDURE

    KEY            DESCRIPTION                  PARAMETER VALUE
    ---            -----------                  ---------------

TIMETYPE   Time Filtering Method            "N"
           ("N"=Non-periodic,
            "C"=Calendar-periodic,
            "A"=Absolute-periodic)








Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
? RUN
```

The user then initiates the DATA ACCESS procedure for the data set of interest.

```
TUTOR DISPLAY:  DARPFFIL                                         PAGE # 1+
   KEY          DESCRIPTION                      PARAMETER VALUE
   ---          -----------                      ---------------

INTYPE     Input source type                "P"
           (P= PCDS, T= Tape, D= Disk)

OUTTYPE    Output medium                    "T"
           (T= Tape, D= Disk copy output)

LATRANGE   Filter latitude range                        -90.00000
                                                          90.00000

LONRANGE   Filter longitude range                       -180.0000
                                                          180.0000



Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?
```

The user is then tutored for additional keywords for controlling the operation of the function. The user wants to use the default version for the displayed keywords, so s(he) enters a <CR> to see additional keywords.

```
TUTOR DISPLAY:  DARPFFIL                                         PAGE # 2+


   KEY          DESCRIPTION                      PARAMETER VALUE
   ---          -----------                      ---------------

LRRANGE    Logical record range                                 1
                                                                20

LRINCREM   Logical record increment                             1

START      Start time                       "19700101000000"

END        End time                         "19991231235959"

I2START    Start time #2                    "00000000000000"

I2END      END time #2                      "00000000000000"


Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
? START = 19781102005642
? END = 19781102014930
```

The user specifies a time window from which to select the data for the CDF. Otherwise the user accepts the defaults (i.e., to extract all the data in the specified time range.)

```
TUTOR DISPLAY:   DARPFFIL                                          PAGE # 2+

   KEY             DESCRIPTION                      PARAMETER VALUE
   ---             -----------                      ---------------

LRRANGE    Logical record range                                        1
                                                                      20

LRINCREM   Logical record increment                                    1

START      Start time                      "19781102005642"

END        End time                        "19781102014930"

I2START    Start time #2                   "00000000000000"

I2END      END time #2                     "00000000000000"


Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
? RUN
```

The user continues the
DATA ACCESS process.

```
INITIATING QUERY OF PCDBMS DATA BASE.



TAPEID           FILE NUM    ITEM        ITEM LEN      TOTAL LEN
----------------  --------    --------    -----------   -----------
P0556                  20    SCAN                828         81144

Total number of items to be accessed:          98

Maximum number of bytes to be read:     81144

HIT RETURN KEY TO CONTINUE
```

The system displays
information about the
data files meeting the
user's selection criteria.

```
TUTOR DISPLAY:  DARPFIOS                                      PAGE # 1.
                PCDS Data Access:   INPUT / OUTPUT   SPECIFICATIONS

  KEY           DESCRIPTION                      PARAMETER VALUE
  ---           -----------                      ---------------

RUNNAME     (1-8 letters or numbers)








Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
? RUNNAME = SBUV1102
```

The user is then prompted
for a name for the CDF. The
user picks a name which will
assist in indicating the
contents of the data set.
Any 1- to 8-character name
may be chosen.

```
TUTOR DISPLAY:  DARPFIOS                                      PAGE # 1.
                PCDS Data Access:   INPUT / OUTPUT   SPECIFICATIONS

  KEY           DESCRIPTION                      PARAMETER VALUE
  ---           -----------                      ---------------

RUNNAME     (1-8 letters or numbers)            "SBUV1102"








Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
? RUN


Enter "R" to run data access program   ** OR **
enter "E" to exit and go back to menu. > R
```

The user continues the
DATA ACCESS process.

The system then provides
one last chance for the
user to stop the process.
The user types "R" to
continue the data access.

```
12:30:07        Begin processing input tape P0556

12:30:07        Mounting P0556            on _MFA0:.
12:31:09        Tape mounted.
```

The system displays
messages informing the '
the user of what is
happening. The user need
not know or care which
tape holds the data of
interest. The system
determines which tapes are
needed and issues the mount
request to the operator
automatically.

```
Begin processing tape: P0556          File number:    20




***** END OF PCDBMS DATA ACCESS RUN *******

PRESS RETURN KEY FOR MENU
```

When the processing is
complete, the user enters
<CR> to return to the menu.

```
MENU DISPLAY:  DACCESS                                      PAGE # 1.

                   DATA ACCESS Subsystem Menu


1)    Copy/List Data Set                          ( DA  )

2)    List a Climate Data File                    ( CDFLIST )

3)    Produce Subset CDF                          ( CDFSUBSET ) ,










Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
? TOP
```

The user requests to
return to the ROOT Menu.

```
MENU DISPLAY:  ROOT                                        PAGE # 1.

                   PCDS Version 2.1 Subsystems Menu


1)     CATALOG Subsystem Menu                      [ CATALOG ]

2)     INVENTORY Subsystem Menu                    [ INVENTORY ]

3)     DATA ACCESS Subsystem Menu                  [ DACCESS ]

4)     DATA MANIPULATION Subsystem Menu            [ CDFUTIL ]

5)     GRAPHICS Subsystem Menu                     [ GRAPHICS ]







Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
? 5
```

In order to examine the
data in the CDF, the user
selects the GRAPHICS
Subsystem.

```
MENU DISPLAY:   GRAPHICS                                      PAGE # 1.

                    GRAPHICS Subsystem Menu

1)      Graph Two-Dimensional Data                    ( TWODGRAPH )

2)      Three-Dimensional Graphics Menu               [ THREEDGRF ]

3)      Run Graphics Post Processor                   ( PPOSTPROC )




Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
? 1
```

The user has a choice of two or three-dimensional plotting. In this scenario, the user selects two-dimensional plotting of the CDF contents.

```
TUTOR DISPLAY:   TWODGRAPH                                    PAGE # 1.
                    Two-dimensional Graphics
  KEY           DESCRIPTION                      PARAMETER VALUE
  ---           -----------                      ---------------

RUNNAME    PCDS Data Access Run Name


TERMINAL   Selection of plotting device         "YES"




Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
? RUNNAME =   SBUV1102
```

The user is then prompted for the keywords needed to perform the plotting. The user provides the name given to the CDF during its generation. The plot will be·displayed on the user terminal by default.

```
TUTOR DISPLAY:  TWODGRAPH                                    PAGE # 1.
                        Two-dimensional Graphics

   KEY            DESCRIPTION                   PARAMETER VALUE
   ---            -----------                   ---------------

RUNNAME    PCDS Data Access Run Name            "SBUV1102"


TERMINAL   Selection of plotting device         "YES"







Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
? RUN
```

The user runs the proc
to display two-dimensional
graphics.

```
TUTOR DISPLAY:  ELEMENT                                      PAGE # 1+
                Selection of Climate Data Elements for Plotting

   KEY            DESCRIPTION                   PARAMETER VALUE
   ---            -----------                   ---------------

XAXIS      Plotting quantity for the
           independent axis

NUMCURVE   Number of Curves                              1







Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?  XAXIS = ??
```

The system prompts the
user for which variables
to plot. In order to
determine what climate
variables are available,
the user selects the HELP
display for the x-axis
keyword, XAXIS.

```
TUTOR DISPLAY - LEVEL 2:  ELEMENT                                PAGE # 1+
                Selection of Climate Data Elements for Plotting

                          KEYWORD:  XAXIS

Use the integer next to a data quantity to select it for plotting on the
independent axis
For histograms and profile plots simply enter 0
     1         EPOCH (YYYYMMDD)
     2         EPOCH (SEC. OF DAY)
     3         SCAN LATITUDE (DEGREES)
     4         SCAN LONGITUDE (DEGREES (+E))
     5         SOLAR ZENITH ANG (DEGREES)
     6         ORBIT NUMBER (ORBIT NUMBER)
     7         QCODE T_OZONE
     8         BEST OZONE (MATM-CM)
     9         A-PAIR OZONE (MATM-CM)
    10         B-PAIR OZONE (MATM-CM)
    11         A-B PAIR DIFF (MATM-CM)
    _____

Enter EXIT to terminate HELP display, press RETURN to page.
?
```

The user studies the HELP display, pressing <CR> to page through it.

```
TUTOR DISPLAY - LEVEL 2:  ELEMENT                                PAGE # 2.
                Selection of Climate Data Elements for Plotting

                          KEYWORD:  XAXIS

    12         REFLECTIVITY
    13         RP-RM DIFF
    14         TERRAIN HEIGHT (ATMOSPHRES)
    15         QCODE PROFILE
    16         LAYER PROFILE (MATM-M) (Pick this item to examine the profile.)
    28         STD FOR LAYERS (MATMCM) (Pick this item to examine the profile.)
    40         MR PROFILES (MICROGRAM/GM) (Pick this item to examine the profile.)
    56         C.G. OF PROFILE (MILLIBARS)
    57         C PARAMETER (MATM-CM)
    58         SIGMA PARAMETER
    59         N-VALUES  (Pick this item to examine the profile.)




    _____

Enter EXIT to terminate HELP display, press RETURN to page.
? EXIT
```

The user types EXIT to return to the tutor display.

```
TUTOR DISPLAY:   ELEMENT                                          PAGE # 1+
                 Selection of Climate Data Elements for Plotting

   KEY            DESCRIPTION                      PARAMETER VALUE
   ---            -----------                      ---------------

XAXIS     Plotting quantity for the
          independent axis

NUMCURVE  Number of Curves                                  1




                           `



                        `


Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?   XAXIS = 3
```

The user selects latitude
for the x-axis.

```
TUTOR DISPLAY:   ELEMENT                                          PAGE # 1+
                 Selection of Climate Data Elements for Plotting

   KEY            DESCRIPTION                      PARAMETER VALUE
   ---            -----------                      ---------------

XAXIS     Plotting quantity for the                        3
          independent axix

NUMCURVE  Number of Curves                                  1






Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
? YAXIS = 8
```

The HELP display for the
y-axis would show the same
list of variables as are
available for the the x-axis.
Knowing this, the user selects
BEST OZONE for the y-axis
without first looking at the
help for that keyword. The
system then displays the
screen which prompts for the
y-axis, showing the user's
selection.

```
TUTOR DISPLAY:  ELEMENT                                              PAGE # 2+
                Selection of Climate Data Elements for Plotting

  KEY           DESCRIPTION                         PARAMETER VALUE
  ---           -----------                         ---------------

YAXIS     Plotting quantity for the                      8
          dependent axis




PROFILE   Selection of a plot to be of a                 0
          profile

Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
?
```

The user enters <CR>
to view the next page.

```
TUTOR DISPLAY:  ELEMENT                                              PAGE # 3.
                Selection of Climate Data Elements for Plotting

  KEY           DESCRIPTION                         PARAMETER VALUE
  ---           -----------                         ---------------

ERRORBAR   Error quantities for plot                      0
                                                          0
                                                          0
                                                          0
                                                          0
                                                          0
                                                          0
                                                          0
                                                          0
                                                          0




Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
? RUN
```

No errorbars are wanted,
so the user runs the
procedure as is.

```
┌─────────────────────────────────────────────────────────────────────────┐
│ TUTOR DISPLAY:  FLTRSLCT                                      PAGE # 1.   │
│                 Selection of Filters on Climate Data                      │
│                                                                           │
│   KEY            DESCRIPTION                     PARAMETER VALUE           │
│   ---            -----------                     ---------------          │
│                                                                           │
│ NUMBFILT  Number of Filters                            0                  │
│                                                                           │
│ FILTERS   Elements selected for filters               0                   │
│                                                       0                    │
│                                                       0                    │
│                                                       0                    │
│                      .                                0                    │
│                                                       0                    │
│                                                       0                    │
│                                                       0                    │
│                                                       0                    │
│                                                       0                    │
│                                                                           │
│                                                                           │
│                                                                           │
│ Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page. │
│ ? RUN                                                                     │
└─────────────────────────────────────────────────────────────────────────┘
```

This screen prompts the user for filters to limit the volume of data to be plotted. The user does not want to specify filters, so (s)he runs the procedure as is.

```
┌─────────────────────────────────────────────────────────────────────────┐
│ TUTOR DISPLAY:  TWODOPTS                                     PAGE # 1+    │
│                 Two-dimensional Plotting of Climate Parameters            │
│                                                                           │
│   KEY            DESCRIPTION                     PARAMETER VALUE           │
│   ---            -----------                     ---------------          │
│                                                                           │
│ TITLE     Title of the plot                                               │
│                                                                           │
│                    .                                                      │
│ PLOTTYPE  Type of plot to be made          "SCATTER DIAGRAM"              │
│                                                                           │
│ SORT      Sorting of data                  "NO"                           │
│                                                                           │
│ COORDSYS  Coordinate system for the plot   "RECTANGULAR"                  │
│                                                                           │
│ SCALESYS  Scaling system for the plot                    1                │
│                                                                           │
│ CURVEFIT  Curve fits to the data           "NONE"                         │
│                                                                           │
│                                                                           │
│                                                                           │
│ Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page. │
│ ? TITLE = "Ozone distribution for November 2, 1978"                       │
└─────────────────────────────────────────────────────────────────────────┘
```

The user is then prompted for the keywords to control the format of the plot. The user specifies a title for the plot and uses default values for the other keywords.

```
TUTOR DISPLAY:  TWODOPTS                                          PAGE # 1+
                Two-dimensional Plotting of Climate Parameters

   KEY          DESCRIPTION                     PARAMETER VALUE
   ---          -----------                     ---------------

 TITLE       Title of the plot               "Ozone distribution for November
                                              2, 1978"

 PLOTTYPE    Type of plot to be made         "SCATTER DIAGRAM"

 SORT        Sorting of data                 "NO"

 COORDSYS    Coordinate system for the plot    "RECTANGULAR"

 SCALESYS    Scaling system for the plot                          1

 CURVEFIT    Curve fits to the data            "NONE"


 Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
 ?
```

The user enters a <CR> to view the keywords on the next page.

```
TUTOR DISPLAY:  TWODOPTS                                          PAGE # 2.
                Two-dimensional Plotting of Climate Parameters

   KEY          DESCRIPTION                     PARAMETER VALUE
   ---          -----------                     ---------------

 STATS       Statistics with the plot        "NONE"

 FONT        Character font for labelling     "FAST"

 HARDCOPY    Hardcopy output of the plot      "NO"






 Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
 ? RUN
```

The user is satisfied with the values of the keywords, so (s)he runs the procedure as is.
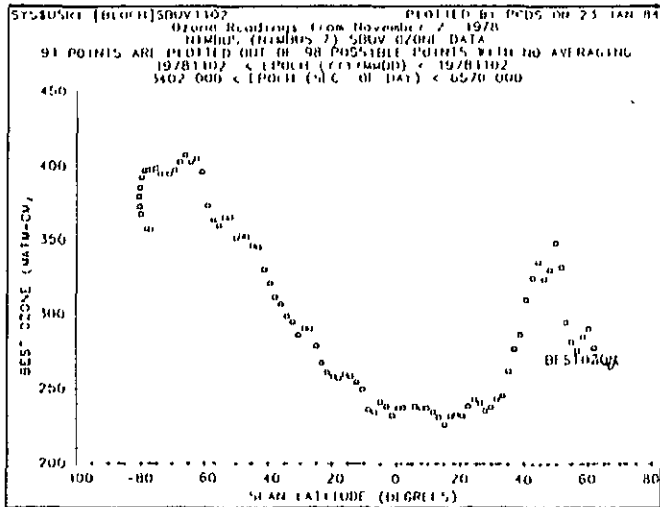
PRESS RETURN KEY FOR MENU

The user examines the plot of the specified variables, then enters <CR> to return to the menu. The user can generate a hardcopy of the plot by specifying the appropriate keywords in the GRAPHICS Postprocessor, as was done to create the plot for this appendix. There are a variety of plotting devices available, with different resolutions and color capabilities.

```
TUTOR DISPLAY:  CONTPROMP                                    PAGE # 1.
                    Plot continuation specification

   KEY            DESCRIPTION                  PARAMETER VALUE
   ---            -----------                  ---------------

CONTCODE    Continuation code.                        0
            (0 - stop,
             1 - change data or
                 filter selection,
             2 - change filter ranges,
             3 - same filtered data)




Enter key=value, key=??, SAVE, RESTORE, RUN, EXIT, HELP or Press RETURN to page.
? RUN
PRESS RETURN KEY FOR MENU
```

The system allows the user to change the data and/or filter ranges to be plotted, to plot the same filtered data, or to exit to the GRAPHICS Subsystem Menu. The user wishes to exit, so (s)he runs the procedure with the default, then enters a <CR> to get back to the GRAPHICS Menu.

```
MENU DISPLAY:  GRAPHICS                                      PAGE # 1.

                    GRAPHICS Subsystem Menu


1)      Graph Two-Dimensional Data               ( TWODGRAPH )

2)      Three-Dimensional Graphics Menu          [ THREEDGRF ]







Enter option number, BACK, MENU, TOP, COMMAND, HELP, or LOGOFF.
? LOGOFF
```

At the end of the session, the
user logs off the system and
the computer with one command.

MENU MODE INFORMATION

This is general help information for operating menu mode.

Each entry on a menu is either another menu or a proc. Selecting a menu activates that menu. Selecting a proc activates TUTOR mode for the proc so that parameters can be supplied before executing the proc.

The responses in menu mode are:

a number	Specifies entry selection.
BACK	Returns to the previous menu.
MENU	Re-displays the current menu.
MENU menu-name	Directly activates the named menu. Each menu has a name at the top of the screen which can be used for "menu-name". If the menu name contains punctuation, the name must be in quotes.
TOP	Returns to the original menu (the ROOT).
HELP	Displays the current help information.
HELP proc	Displays information on the operation of the "proc".
HELP number	Displays information on the operation of the corresponding menu entry. If "number" is zero, help information on the current menu is displayed.
COMMAND	Causes TAE to exit menu mode and enter command mode. If menu mode is subsequently reactivated, the active menu at the time of the escape to command mode becomes the active menu by default.
LOGOFF	Terminates the current TAE session.

The menu commands may be abbreviated, e.g., "C" for "COMMAND". Lower case may be used.

TUTOR MODE OPERATION

Tutor mode assists the user in specifying the parameters for a proc. Tutor mode is entered:

o When, in menu mode, a selection is made that requires execution of a proc, or

o When, in command mode, the TUTOR or "?" command is typed.

The tutor display shows information on each of the proc's parameters. The "current" value of a parameter is established in one of several ways:

o DEFAULT: Some parameters have a default value. Initially, the default is shown as the current value.

o EXPLICIT: The user can explicitly set the current value of a parameter using the commands explained below.

o LATCHED: Parameters may be "latched" from command mode. The values from a command mode RUN are remembered by tutor if some mandatory parameters are missing from the RUN and the user enters tutor mode immediately with no "proc" specified on the TUTOR command.

The tutor mode commands allow the user to scroll between the pages of a tutor display, update parameter values, request detailed information for parameters, and activate the proc. The user commands are:

key=value   This command assigns a new value(s) to the parameter with the name "key". If the parameter is multi-valued, the values must be entered in order, separated by commas and/or containing the parameter and displays its new value(s).

A value consists of one of the following:

1. A character string. If spaces or special characters are in the string, the string must be enclosed in quotes. A null string is indicated by two adjacent quotes, "".

2. A numeric decimal value consisting of the characters "+", "-", ".", "0-9", and "E" (the power of ten indicator). Spaces are not permitted within a numeric value.

3. A file specification.

4. A list of values of type (1) or (2).
   Elements in the list are separated with

key=   The default value (if any) is assigned to the
                        parameter.

key=?   Causes tutor mode to display the page which
                        shows the parameter named "key".

carriage return   Causes tutor to display the next page of
                        parameters. If this command is given on the
                        last page, tutor wraps around to the first
                        page.

key=??   Requests detailed help information on the
                        specified parameter.

RUN   Causes the proc to execute. If any mandatory
                        parameters have not been specified, tutor
                        refuses to run the proc.

HELP   Display the current help information.

EXIT   Terminates the tutor session, returning to
                        menu mode or command mode. The proc is not
                        executed.

SAVE filename   Saves the current parameter values on disk.
                        If "filename" is omitted, "proc.PAR" is as-
                        sumed.

RESTORE filename   Restores all parameter values from the SAVED
                        disk file. If "filename" is omitted,
                        "proc.PAR" is assumed.

RESTORE LAST   Restores all parameters to the values from the
                        most recent tutor RUN command. (Every tutor
                        RUN command does an implicit "SAVE LAST".)

Commands and keywords may be abbreviated by truncating characters, i.e., "RU" is equivalent to "RUN". When abbreviations are used, uniqueness must be maintained, e.g., "X" is an ambiguous abbreviation for a parameter "X1" if a parameter "X2" exists.

A proc activated with the RUN command may be aborted by hitting <CONTROL>C and responding with "ABORT" to the "TAE>" prompt.

TAE COMMANDS

The commands available in TAE COMMAND mode are:

ABORT

DEFAULT   APLIB   LIB=(library1,   library2,   ...)

EXIT

HELP proc-name

LOGOFF

MENU

RUN proc-name parml=value1 parm2=value2 parm3=value3 ...

SHOW

WRITE   TERM   MESSAGE="message for terminal"

SWITCH   hex-value

TUTOR   proc-name

VICAR

? proc-name   ———

Commands may be abbreviated by truncating right-hand characters; uniqueness must be maintained, e.g., "S" is ambiguous with "SWITCH" and "SCRIPT".

The RUN command is optional, for example, the following commands are equivalent:

RDWIN   WINDOW=(0 511 0 511)

RUN RDWIN WINDOW=(0 511 0 511)

If TAE does not recognize the first word of a command as a TAE command, it assumes that the first word is a proc name.

PROC INTERRUPT MODE USER INFORMATION

When <CONTROL>C is used to interrupt an active proc, the valid responses to the "TAE>" prompt are:

CONTINUE -- Continue executing the proc.

ABORT -- Terminate execution of the proc.

HELP -- Display this help information.

Standard TAE commands are not available until the proc abort or until the proc terminates normally.

PROC	DESCRIPTION	KEYWORDS
BROWSE	Permits the user to read a text file, printing specified pages	BRFILE = Specification for the file to browse (no default)
DELETEHC	Deletes the hardcopy file from the user account	None
DISPLAYHC	Displays the contents of the hardcopy file	None
ISEC	Allows the user to browse an introduction to the Catalog	None
PRINTHC	Prints the contents of the hardcopy file	DELETE = Indication of whether the file is to be deleted after printing (default = "YES")
PSEC	Allows the user to browse detailed descriptions of climate parameter data sets	None
RSEC	Allows the user to browse detailed descriptions of radiance data sets	None
SUMKEY	Lists unique combinations of keyword values used in the Catalog	PARAM = List of climate parameters (default = "ALL") LEVEL = List of processing levels: 0, I, II, or III (default = "ALL") MISSION = List of missions (default = "ALL") SENSOR = List of sensors (default = "ALL")

PRECEDING PAGE BLANK NOT FILMED

PROC	DESCRIPTION	KEYWORDS
SUMSEC	Lists summary information about the data sets which meet user specifications	PARAM = List of climate parameters (default = "ALL") LEVEL = List of processing levels: 0, I, II, or III (default = "ALL") MISSION = List of missions (default = "ALL") SENSOR = List of sensors (default = "ALL")

PROC	DESCRIPTION	KEYWORDS
DELETEHC	Deletes the hardcopy file from the account	None
DISPLAYHC	Displays the contents of the hardcopy file	None
DTYPES	Lists available data types, logical record types, and climate parameters	PARM = List of climate parameter mnemonics (default = "ALL")
DTYPESUM	Summarizes information about each data type, providing for each the number of tapes and files, time range covered, orbit range covered, logical record types, climate parameters, and sensors	PARM = List of climate parameter mnemonics (default = "ALL") DTYPE = List of data types (default = "ALL")
FILES	Provides information at the file level about available data: tapeid, file number, time range, orbit range, file size, etc.	DTYPE = One data type (no default) START = Start of a time range for selection of information (no default) END = End of the time range for selection of information (no default) ITEM = List of logical record types (default = "ALL") PARM = List of climate parameter mnemonics (default = "ALL")

PROC	DESCRIPTION	KEYWORDS
INVGRAPH	Provides INVENTORY statistics summaries in graphical form	DTYPE = Data type of the data to be summarized (no default) PLOTTYPE = Type of plot to be produced (default = "L", line chart) START = Start of a time range within which to plot the statistics (default ="19700101000000") END = End of the time range within which to plot the statistics (no default) INCREMNT = The time distribution increment to display on the plot: null (""), day ("D"), week ("W"), month ("M"), or year ("Y") (does not apply when PLOTTYPE = "M") (default = "") FONT = Lettering style for the titles and labels on the plot: "FAST", "LOW", "MEDIUM", and "HIGH" (default = "FAST") TERMINAL = Primary output for the plot: the user terminal ("YES") or up to nine characters naming a plot file in which to store the graphics image (for later redisplay by the post-processor) (default = "YES")

PROC	DESCRIPTION	KEYWORDS
INVGRAPH	(continued)	HARDCOPY = Secondary output for the plot (valid only when TERMINAL is set to "YES"): a hardcopy device attached to the user terminal ("YES"), up to nine characters naming a plot file in which to store the graphics image (for later redisplay by the postprocessor), or no secondary output ("NO") (default = "NO")
ITEMS	Lists information about each selectable logical unit of data (such as map, grid, profile, etc.)	DTYPE = List of data types (default = "ALL") ITEM = List of logical record types (default = "ALL")
MAPPARM	Controls the appearance of of the world map display in the INVENTORY Graphics proc	LATRANGE = The minimum and maximum values of the latitude window for display (no default) LONRANGE = The minimum and maximum values of the longitude window for display (no default) ZARANGE = The minimum and maximum values of the zenith angle window within which to select data for display (no default) RESOLUT = Resolution of the world map: "C" = coarse, "M" = medium, "F" = fine (no default)

PROC	DESCRIPTION	KEYWORDS
PARMS	Lists available climate parameters and their mnemonics	None
PRINTHC	Prints the contents of the hardcopy file	DELETE = Indication of whether the file is to be deleted after printing (default = "YES")
TAPEHIS	Lists information about tapes inventoried since a given time	DTYPE = List of data types (default = "ALL") SINCE = Earliest inventory date to list (no default)
TAPES	Provides information at the tape level about the available data: tapeid, number of files, orbit range, generation date, inventory date, time range	PARM = List of climate parameter mnemonics (default = "ALL") DTYPE = List of data types (default = "ALL") START = Start of a time range for selection of information (no default) END = End of the time range for selection of information ; (no default)

PROC	DESCRIPTION	KEYWORDS
BROWSE	Permits the user to read a text file, printing specified pages	BRFILE = Specification for the file to browse (no default)
CDFLCNTL	Specifies the titles and output formats for the listings generated by CDF list and subset operations	MAINTITL = Main title for the listing (no default) SUBTITL = Secondary title for the listing (no default) OUTDEV = Output device: CRT ("C") or printer ("P") (default = "C") PAGINATE = Indication of whether to paginate the listing (default = "Y") DATETIME = Indication of whether to display the date and time associated with each data point (default = "Y") LINESPAC = Line spacing: single or double (default = "S") EPCHFRMT = Number indicating format for the listing of the epoch field (default = 1)
CDFLIST	Lists the contents of a CDF	RUNNAME = Name of the CDF (no default)
CDFSCNTL	Specifies a title and name for a subset CDF	TITLE = Title for the summary listing from the subsetting operation (no default) NEWNAME = Name for the subset to be generated (no default)
CDFSUBSET	Builds a CDF containing a subset of an existing CDF	RUNNAME = Name of the parent CDF (no default)

PROC	DESCRIPTION	KEYWORDS
DA	Accesses a data set and outputs it in its original format, lists its contents to the terminal or printer, or builds a CDF (a data-independent format file)	DTYPE = Data type of input data set (no default)
		MODE = Processing mode: interactive or batch (default = "I")
		COPY = Indication of whether to copy the data set in its original format (default = "Y")
		LIST = Indication of whether to list the data set contents (default = "Y")
		BUILD = Indication of· whether to build a CDF structure (default = "N")
		TIMETYPE = Format of the time descriptor for windowing on the time range: non-periodic ("N"), absolute ("A"), or calendar ("C") (default = "N")
DARPFERBP	For ERB data sets only, specifies a filter on ERB parameter numbers	ERBPARMS = Numbers of up to 10 parameters to be output (default = (0,...,0))
DARPFFIL	Defines ranges for data to be output from the Copy/ List proc, and specifies the output media	INTYPE = Input data medium: disk ("D"), user tape ("T"), or inventoried Pilot Climate tape ("P") (default = "P")
		OUTTYPE = Output medium: tape ("T") or disk ("D") (default = "T")
		PARM = Climate parameter(s) to include in the output (default = "ALL")

PROC	DESCRIPTION	KEYWORDS
DARPFFIL	(continued)	ITEMS = Logical record type(s) to include in the output (default = "ALL")
		LATRANGE = Latitude range to include in the output, (south to north, negative indicates south) (default = (-90.,90.))
		LONRANGE = Longitude range to include in the output, (west to east, negative indicates west) (default = (-180.,180.))
		SCRANGE = Range of scan numbers within a physical record to be output (default = (<lowest>,<highest>))
		SCINCREM = Increment between selected scan numbers within the scan range (default = 1)
		LRRANGE = Range of records within a physical record to be included in the output (default = (1,20))
		LRINCREM = Increment between successive logical records within the logical record range (default = 1)
		TCINCREM = "Calendar" time increment between the beginning of successive windows included in the output, in the format MMDD HHMMSS (default = "0000 000000")
		TAINCREM = "Absolute" time increment between the beginning of successive windows included in the output, in the format DDDDD HHMMSS (default = "00000 000000")

PROC	DESCRIPTION	KEYWORDS
DARPFFIL	(continued)	DURATION = Duration of each time window, in either "calendar" or "absolute" time, in the format DDDDD HHMMSS (default = "00000 000000")
		START = Start of a time range for selection of information, in the format YYYYMMDDHHMMSS (default = 19700101000000)
		END = End of the time range for selection of information, in the format YYYYMMDDHHMMSS (default = 19991231235959)
		I1START through I10START = Start of each of ten additional time ranges for selection of information, in the format YYYYMMDDHHMMSS (default = 00000000000000)
		I1END through I10END = End of each of ten additional time ranges for selection of information, in the format YYYYMMDDHHMMSS (default = 00000000000000)
DARPFIOS	Controls the input and output from the Copy/List proc	RUNNAME = Name to identify the output (no default)
		INFILE = Name of the input disk data set (no default)
		OUTFILE = Name of the output disk data set (no default)
		NUMTAPES = Maximum number of tapes to generate (no default)
		DENSITY = Density of output tape: 800, 1600, or 6250 bpi (no default)

PROC	DESCRIPTION	KEYWORDS
DARPFIOS	(continued)	STRUCTR = Specifies the format of the output tapes as "flat" ("F"), like a disk file, or "structured" ("S"), like an original PCDS data tape (no default) MAXDENS = Maximum density among the user-specified input tapes, in bpi (1600 or 6250) (no default) I1TAPE through I5TAPE = Names and file ranges of tape data sets to use as input (no defaults)
DARPFOTS	For OZONE-T data sets only, specifies a filter on the sample field of view	SMPRANGE = Range of values to filter the sample field of view (default = (1,35)) SAMPINCR = Increment between sample field of view values within the specified range (default = 1)
DARPFPR	Sets a filter on the atmospheric pressure for data sets which are in the SAGE-PROF format	PRANGE = Range of atmospheric pressure values (default = (1,1000))
DARPFTHW	For CLDT data sets only, sets a filter on the THIR word range	WRDRANGE = Range for THIR word values (default = (1,0)) WRDINCR = Increment between THIR words within the specified range (default = 1)

PROC	DESCRIPTION	KEYWORDS
FILTER	Selects filter ranges or windows for listing or subsetting CDFs	RECDSKIP = Increment between records from the parent data set (default = 1) Other data-dependent parameters: ranges of values to include in the output (default = range from the CDF)
SELECT	Selects climate variables for listing or subsetting	Indications of whether to output each specific climate variable from the parent CDF (default = "N")

PROC	DESCRIPTION	KEYWORDS
AVECDF	Calculates statistics (mean, variance, and count) for a CDF.	RUNNAME = Name of the input CDF (no default) NEWNAME = Name of the output CDF (no default) METHOD = Method of averaging: (1) compress by a factor or (2) average over a time period (default = 2) MODE = Processing mode: interactive ("I") or batch ("B") (default = "I")
CALC	Defines the formula to calculate each of the new fields in the CDFCOMBIN proc	COUNT = Index of the new field being defined (default = the next new field) MNEMONIC = Mnemonic for the new field (no default) NAME = Full name of the new field (no default) UNITS = Engineering units for the new field (default = "") FORMAT = FORTRAN-style format for display of the new field (default = "") TYPE = Internal storage type of the new field (e.g., "R4" for a four-byte real number) (default = "R4")

PROC	DESCRIPTION	KEYWORDS
CALC	(continued)	VALUE = Free-format specification of the formula for calculating the value of the new field at each data point (default = "") INMNEM = Keyword which provides help for the user in determining the valid mnemonics from the input CDF (default = "")
CDFCOMBIN	Produces a new CDF with new fields based on user-specified algebraic combinations of fields within the original CDF	INCDF = Name of the input CDF (no default) OUTCDF = Name of the output CDF (no default) MAXNEW = Maximum number of new fields to be defined (default = 10)
CDFLCNTL	Specifies the titles and output formats for the listings generated by CDF list and subset operations	MAINTITL = Main title for the listing (no default) SUBTITL = Secondary title for the listing (no default) OUTDEV = Output device: CRT ("C") or printer ("P") (default = "C") PAGINATE = Indication of whether to paginate the listing (default = "Y") DATETIME = Indication of whether to display the date and time associated with each data point (default = "Y") LINESPAC = Line spacing: single or double (default = "S") EPCHFRMT = Number indicating format for the listing of the epoch field (default = 1)

PROC	DESCRIPTION	KEYWORDS
CDFLIST	Lists the contents of a CDF	RUNNAME = Name of the CDF (no default)
CDFSCNTL	Specifies a title and name for a subset CDF	TITLE = Title for the subsetting (no default) NEWNAME = Name for the new subset (no default)
CDFSUBSET	Builds a CDF containing a subset of an existing CDF	RUNNAME = Name of the parent CDF (no default)
FILTER	Selects filter ranges or windows for listing or subsetting CDFs	RECDSKIP = Increment between records from the parent data set (default = 1) Other data-dependent parameters: ranges of values to include in the output (default = range from the CDF)
GETPAR2	Controls the averaging of a CDF when compression by number of points is selected	FACTOR = Compression factor or the number of points to average (no default) START = Start of a time range from which to select data (default = 1970,1,1,0; i.e., January 1,1970 at 00:00 hours) STOP = End of the time range from which to select data (default = 1999,12,31,24; i.e., December 31, 1999 at 24:00 hours)

PROC	DESCRIPTION	KEYWORDS
GETPAR3	Controls the averaging of a CDF when time averaging is selected	INCREMNT = Number of time units for the averaging period (no default)
		UNIT = Integer representing the time unit over which to average (1 = year, 2 = month, 3 = day, 4 = hour) (no default)
		START = Start of a time window from which to select data to compress (default = 1970,1,1,0; i.e., January 1,1970 at 00:00 hours)
		STOP = End of the time window from which to select data to compress (default = 1999,12,31,24; i.e., December 31, 1999 at 24:00 hours)
		TWICE = Specifies whether the input data is twice-daily (default = "N")
		COMBINED = If the input is twice-daily, specifies whether to combine the day and night data to compute the statistics, or to compute them separately for day and night (default = "N")
		XYEAR = Specifies whether an averaging period may cross a year boundary (default = "N")
		XMONTH = Specifies whether an averaging period may cross a month boundary (default = "N")
		XDAY = Specifies whether an averaging period may cross a day boundary (default = "N")

PROC	DESCRIPTION	KEYWORDS
GETPAR3	(continued)	ACCEPT = Specifies the minimum number of points that must be present within the averaging period (default = 1)
PARASLCT	Specifies a gridded climate parameter for ungridding	CLIPAR = Gridded climate parameter to include in the new CDF (no default)
RENAME	Prompts the user for a new field mnemonic if one is specified in CDFCOMBIN which duplicates a mnemonic already valid in the input CDF	MNEMONIC = A unique mnemonic for the new field being defined (default = "OLDMNEMO") FIELDNAM = A description of contents of the new field (default = "OLD FIELD NAME")
SELECT	Selects climate variables for listing or subsetting	Indications of whether to output each specific climate variable from the parent CDF (default = "N")
UNGRIDCDF	Generates an ungridded CDF from a gridded CDF	RUNNAME1 = Name of gridded (parent) CDF (no default) RUNNAME2 = Name of ungridded (generated) CDF (no default)

PROC	DESCRIPTION	KEYWORDS
AVERAGE	Specifies the factor for averaging a CDF prior to plotting	AVGFACT = Averaging factor, the number of sequential points to be averaged (default = 10)
CONTOUR	Specifies the format of a three-dimensional contour plot	SMOOTH = Indication of whether to smooth the data prior to plotting (default = "NO") LABLINCR = Number of contour lines between labeled contours (default = 4) BANDLVLS = Values for demarcation of the contour bands (ranges which are drawn in a unique color or line style) (default = (0., 0.1E+11)) RESOLUTN = Resolution of the plot: "LOW" = 20 x 20 mesh; "MEDIUM" = 30 x 30; "HIGH" = 40 x 40 (default = "LOW") SCALING = Scaling of the axes in relation to each other: to the same scale ("UNIFORM"), or independently (default = "INDEPENDENT") MINMAX = Indication of whether to label minima and maxima on the plot (default = "NO") CRANGE = Range of contour values to display, low to high: (0,0) means the system determines the range, low value > high value means suppress the contours altogether (default = (0,0))

PROC	DESCRIPTION	KEYWORDS
CONTOUR	(continued)	INCRLEVL = Increment between contour levels: 0 means automatic, > 0 indicates actual increment, < 0 means absolute value equals the number of contours on the plot (default = 0)
CONTPROMP	Prompts the user for a code indicating whether to continue the GRAPHICS proc with the same data and filters, continue with new data or filters, or to stop the proc altogether	CONTCODE = Indication of whether to stop the GRAPHICS proc or to continue plotting, possibly with a variation in either the data or filters for plotting (default = 0, i.e., stop the proc)
ELEMENT	Selects the elements from the CDF for two-dimensional plotting	XAXIS = The climate variable for plotting on the x-axis (no default) NUMCURVE = The number of dependent variables (number of y-axis selections) (default = 1) YAXIS = The climate variable(s) for plotting on the y-axis (up to NUMCURVE values) (no default) PROFILE = Type of profile plot: -1 for decreasing profile, +1 for increasing profile, or 0 for no profile (default = 0) ERRORBAR = Selection of up to NUMCURVE variables corresponding to the y-axis selections for display as error bars (default = (0,...,0), no errorbars)

PROC	DESCRIPTION	KEYWORDS
ELEMENT3	Selects the elements from the CDF for three-dimensional non-mapping plotting	XAXIS = The climate variable for plotting on the x-axis (no default) YAXIS = The climate variable for plotting on the y-axis (no default) ZAXIS = The climate variable for plotting on the z-axis (no default) PROFILE = Type of profile plot: -1 for decreasing profile, +1 for increasing profile, or 0 for no profile (default = 0)
ELEMENTM	Selects the elements from the CDF for three-dimensional mapping plotting	ZAXIS = The climate variable for plotting on the z-axis, which must be a gridded parameter (no default)
FILTER	Selects filter ranges or windows for specified elements from the CDF to include in the plot	CORRECT = Indication of whether the CDF elements to be filtered are indeed the correct elements desired by the user (default = "YES") Data-dependent parameters: ranges of values to include in or exclude from the plot, and the increment between successive points in the CDF (default = include the entire range from the CDF)

PROC	DESCRIPTION	KEYWORDS
FLTRSLCT	Controls the selection of filters to restrict the volume of data plotted	NUMBFILT = Number of filters to apply to the data (default = 0) FILTERS = Identifying number(s) which correspond to the desired filter(s) (default = (0,...,0))
FR80	Specifies the format of graphical output for the FR80 COM recorder	MEDIA = Type of media (film) on which to plot the output (16mm, 35mm, or 105mm) (default = 35) COLOR = Specifies color ("C") (35mm only) or black-and-white ("BW") for the output TYPE = Specifies the output format when MEDIA is set to 16 or 35: as a movie ("CINE") or as a slide ("COMIC") (default = "CINE") NEWTAPE = Specifies whether the output tape to control the FR80 is a new tape (default = "Y")
HISTOGRAM	Controls the binning of a histogram	BINFACT=The number of bins in which to collect the data (default = 0, the system determines) BINWIDTH = The width of each bin (in terms of the engineering units of the quantity being displayed) (default = 0, the system determines) BINSTART = The value of the first bin (default = 0, the system determines)

PROC	DESCRIPTION	KEYWORDS
HP7580	Specifies the format of graphical output for the Hewlett-Packard HP7580A drafting plotter	MEDIA = The type of output media to which output plots will be directed (default = "C", chart paper) SIZE = Specifies the size of the output medium (default = "B", 11 x 17) PEN = Specifies the pen type for the output medium (default = "R", roller-ball pens)
MAPGRAPH	Generates a three-dimensional plot of data from a mapped CDF	RUNNAME = Name of the CDF (no default) TERMINAL = Primary output for the plot: the user terminal ("YES") or up to nine characters naming a plot file in which to store the graphics image (for later redisplay by the post-processor) (default = "YES")
MAPOPTS	Controls the appearance of three-dimensional plots of data from a mapped CDF	TITLE = Title to appear on the plot (no default) PLOTTYPE = Type of plot: "CONTOUR PLOT" or "SURFACE DIAGRAM" (default = "CONTOUR PLOT") COORDSYS = Projection for outputting the mapped plot (default = "CYLINDRICAL EQUIDISTANT") OUTLINE = Indication of whether to display a world coastline overlay on the plot (default = "YES")

PROC	DESCRIPTION	KEYWORDS
MAPOPTS	(continued)	LATITUDE = Latitude range to display (south to north, negative indicates south) (default = (-90.,90.)) LONGITUD = Longitude range to display (west to east, negative indicates west) (default = (-180,180)) SCALESYS = Integer indicating whether to display a linear or logarithmic axis for the z-axis (default = 1, linear) STATS = Type of statistics to be provided (default = "NONE") FONT = Lettering style for the titles and labels on the plot: "FAST", "LOW", "MEDIUM", and "HIGH" (default = "FAST") HARDCOPY = Secondary output for the plot (valid only when TERMINAL is set to "YES"): a hardcopy device attached to the user terminal ("YES"), up to nine characters naming a plot file in which to store the graphics image (for later redisplay by the postprocessor), or no secondary output ("NO") (default = "NO")
MAPPROMPT	Prompts the user for a code indicating whether to continue the GRAPHICS proc with the same data and filters, continue with new data or filters, or to stop the proc altogether	CONTCODE = Indication of whether to stop the GRAPHICS proc or to continue plotting, possibly with a variation in either the data or filters for plotting (default = 0, i.e., stop the proc)

PROC	DESCRIPTION	KEYWORDS
ORIENTAT	Specifies the orientation of the plots output by the graphics postprocessor when exactly two plots are displayed	ORIENT = Specification of the relative orientation of the two plots: side by side ("H") or one above the other ("V") (default = "H")
PLOTIN	Specifies which plots from a plot file are to be displayed by the GRAPHICS Postprocessor	PLOTNO = Specification of four indices in the plot file which indicate which saved plots are to be redisplayed (default = 1,0,0,0; display the first plot only)
POLYFIT	Determines the degree of of the polynomial for curve fitting	POLYDEGR = Degree of the polynomial to use in the fitting algorithm (default = 5)

PROC	DESCRIPTION	KEYWORDS
PPOSTPROC	Redisplays up to four plots previously generated by the PCDS .	INFILE = Name of the plot file containing the plot(s) for redisplay . (no default) OUTDEV = Name of the output device for redisplay of the plots (default = "TERM"; the user terminal) DELETE = Indicates whether to delete the plot file after redisplay of its contents (default = "N") TITLE = Title for the output from the postprocessor (default = " ") SAVEPLOT = Indication of whether to save the plot after it is redisplayed (default = "N") SKIPREAD = Indication of whether to skip the initial read of the plot file to determine its composition (default = "N")
PROFILE	Specifies the profile levels to include in a two- or three-dimensional plot when PROFILE = 0 (the plot is not a profile plot) in the ELEMENT and ELEMENT3 tutors, respectively	NVALUES = Number of profile levels to include in the plot (must be 1 for three-dimensional plots) (default = 1) PROFILE = Indication of which profile level(s) to include in the plot (default = (0,...,0), none)
PROFILE	Specifies the profile levels to include in a three-dimensional plot when the plot is a profile plot (PROFILE = +1 or -1 in the ELEMENT3 tutor)	RANGE = Indication of which profile level(s) to include in the plot (default = entire range of levels from the CDF)

PROC	DESCRIPTION	KEYWORDS
SURFACE	Specifies the format of three-dimensional surface diagram	AXES = Indication of whether to display the axes (default = "YES") TOPSIDE = Indication of whether to show only the top surface (default = "NO") CONTOUR = Indication of whether to display constant-z lines rather than constant-y lines (default = "NO") SKIRTS = Indication of whether to display skirts on the plot (default = "NO") XLINES = Number of constant-x lines to plot (default = 20) YLINES = Number of constant-y lines to plot (or -z, if CONTOUR = "YES") (does not apply to profile plots) (default = 20)
TEMPLATE	Identifies the user terminal to the system	TYPE = Type of terminal in use, such as the DEC VT100 or the Tektronix 4027 (default = "?", i.e., unknown)
THREEDGRF	Generates a three-dimensional plot of data from a non-mapped CDF	RUNNAME = Name of CDF (no default) TERMINAL = Primary output for the plot: the user terminal ("YES") or up to nine characters naming a plot file in which to store the graphics image (for later redisplay by the post-processor) (default = "YES")

PROC	DESCRIPTION	KEYWORDS
THREEDOPT	Controls the appearance of three-dimensional plots of data from a non-mapped CDF	TITLE = Title to appear on the plot (no default) PLOTTYPE = Format of plot: "CONTOUR PLOT" or "SURFACE DIAGRAM" (default = "CONTOUR PLOT") COORDSYS = Choice of "CARTESIAN" or "CYLINDRICAL" coordinates (default = "CARTESIAN") SCALESYS = Integer representing a combination of linear or logarithmic scales for the x- and y- and z-axes (default = 1, linear for all three) GRIDDING = Choice of binning or gridding algorithm to grid the data points into the graph cells ("BINNING", "BINNING1", "BINNING2", "BINNING3", "LOW", or "HIGH") (default = "BINNING") STATS = Type of statistics to be provided (default = "NONE") FONT = Lettering style for the titles and labels on the plot: "FAST", "LOW", "MEDIUM", and "HIGH" (default = "FAST") HARDCOPY = Secondary output for the plot (valid only when TERMINAL is set to "YES"): a hardcopy device attached to the user terminal ("YES"), up to nine characters naming a plot file in which to store the graphics image (for later redisplay by the postprocessor), or no secondary output ("NO") (default = "NO")

PROC	DESCRIPTION	KEYWORDS
TWODGRAPH	Generates two-dimensional plots of data from a CDF	RUNNAME = Name of CDF (no default) TERMINAL = Primary output for the plot: the user terminal ("YES") or up to nine characters naming a plot file in which to store the graphics image (for later redisplay by the post-processor) (default = "YES")
TWODOPTS	Controls the appearance of two-dimensional plots of data from a CDF	TITLE = Title to appear on the plot (no default) PLOTTYPE = Format of plot: "SCATTER DIAGRAM", "VECTOR PLOT", or "HISTOGRAM" (default = "SCATTER DIAGRAM") SORT = Indication of whether to sort the data before plotting (default = "NO") COORDSYS = Choice of "RECTANGULAR" or "POLAR" coordinates (default = "RECTANGULAR") SCALESYS = Integer representing a combination of linear or logarithmic scales for the x- and y-axes (default = 1, linear for both) CURVEFIT = Indication of curve fit algorithm to be used: cubic splines, linear, polynomial, or no fitting ("YES" indicates spline fitting for a scatter diagram, or display a normal distribution for a histogram) (default = "NO")

PROC	DESCRIPTION	KEYWORDS
TWODOPTS	(continued)	STATS = Type of statistics to be provided (default = "NONE") FONT = Lettering style for the titles and labels on the plot: "FAST", "LOW", "MEDIUM", and "HIGH" (default = "FAST") HARDCOPY = Secondary output for the plot (valid only when TERMINAL is set to "YES"): a hardcopy device attached to the user terminal ("YES"), up to nine characters naming a plot file in which to store the graphics image (for later redisplay by the postprocessor), or no secondary output ("NO") (default = "NO")
V80	Controls the output of plots on the Versatec V-80 electrostatic printer/plotter	MEDIA = The type of media to which the output plots will be directed (default = "F"; fan-fold paper)

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
4. Title and Subtitle Pilot Climate Data System (PCDS) User's Guide		5. Report Date August 1984
		6. Performing Organization Code 634
7. Author(s) Mary G. Reph, Lloyd Treinish, Lewis Bloch		8. Performing Organization Report No.
9. Performing Organization Name and Address NASA/Goddard Space Flight Center Code 634 Greenbelt, MD 20771		10. Work Unit No.
		11. Contract or Grant No.
		13. Type of Report and Period Covered
12. Sponsoring Agency Name and Address		
		14. Sponsoring Agency Code

15. Supplementary Notes

16. Abstract This document provides instructions for using the Pilot Climate Data System (PCDS), an interactive, scientific data management system for locating, obtaining, manipulating, and displaying climate-research data. The PCDS currently provides this support for approximately twenty data sets. This document includes figures that illustrate the terminal displays which a user sees when he/she runs the PCDS and some examples of the output from this system. The capabilities which are described in detail in this document allow a user to perform the following: (1) obtain comprehensive descriptions of a number of climate parameter data sets and the associated sensor measurements from which they were derived; (2) obtain detailed information about the temporal coverage and data volume of data sets which are readily accessible via the PCDS; (3) extract portions of a data set using criteria such as time range and geographic location, and output the data to tape, user terminal, system printer, or online disk files in a special data-set-independent format; (4) access and manipulate the data in these data-set-independent files, performing such functions as combining the data, subsetting the data, and averaging the data; and (5) create various graphical representations of the data stored in the data-set-independent files. Both current users and potential users of the PCDS should find this information useful.

17. Key Words (Selected by Author(s)) Data management, computer graphics, data manipulation, statistics, catalog, inventory, data base management, TAE, meteorology, climate	18. Distribution Statement		
19. Security Classif. (of this report)	20. Security Classif. (of this page) U	21. No. of Pages 130	22. Price*