USER'S MANUAL FOR ANNIE, VERSION 2, A COMPUTER PROGRAM FOR INTERACTIVE HYDROLOGIC DATA MANAGEMENT

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By Kathleen M. Flynn, Paul R. Hummel, Alan M. Lumb, and John L. Kittle, Jr.

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CONTENTS

Abstract 1
Changes From Previous Version 2
Overview—What ANNIE Can Do 3
    Introduction 3
    Manage Data 3
    List or Table Data 3
    Plot Data 5
    Prepare Data for Models 5
Acknowledgments 6
How ANNIE Works 7
    User Interface 7
        Commands 7
        Data Panel 9
        Assistance Panel 10
        Instruction Panel 10
    Special Files 10
        System Defaults—TERM.DAT 10
        Session Record—ANNIE.LOG 11
        Error and Warning Messages—ERROR.FIL 11
The WDM (Watershed Data Management) File 12
    File Structure and Maintenance 12
    Types of Data 12
    Time-Series Data Sets 12
    Time-Series Data Compression 12
    Data-Set Attributes 13
    Special Time-Series Attributes 13
    Selecting Data Sets 13
Steps to Use ANNIE on a Project 15
    Step 1. Are ANNIE and the WDM File Needed? 15
    Step 2. Retrieve Data and Convert Formats if Needed 15
    Step 3. Create WDM File 15
    Step 4. Create Data Sets and Add Data 15
    Step 5. Verify Data 15
    Step 6. Correct or Update Data 15
    Step 7. Use Data 16
    Step 8. Archive the WDM File 16
ANNIE Options and Examples 17
    ARCHIVE 19
    ARCHIVE export 20
    ARCHIVE import 28
    DATA 31
    DATA attributes delete 32
    DATA attributes help 34
    DATA attributes modify 37
    DATA attributes select 40
    DATA attributes view 41
    DATA build 50
    DATA delete 54
    DATA number 56
    DATA select 60
    DATA time series add 61
    DATA time series copy 65
    DATA time series delete 72
    DATA time series generate compute 75
    DATA time series generate transform 80
    DATA time series list 84
    DATA time series modify 94

DATA time series select 99
DATA time series table 100
FILE 106
FILE build 107
FILE summarize 108
GRAPHICS 109
GRAPHICS example attributes 111
GRAPHICS example time 120
GRAPHICS example x-y 130
GRAPHICS input attributes 142
GRAPHICS input time 145
GRAPHICS input x-y 148
GRAPHICS modify axes 151
GRAPHICS modify curves 153
GRAPHICS modify device 156
GRAPHICS modify extra 158
GRAPHICS modify minmax 160
GRAPHICS modify size 162
GRAPHICS modify titles 164
SELECT 166
SELECT add 167
SELECT browse 169
SELECT clear 173
SELECT drop 174
SELECT find 176
SELECT input 183
SELECT list 185
SELECT output 186
SELECT sort 188
Selected References 190
Appendix A--Data-Set Attributes 193
Appendix B--Special Files 203
Appendix C--Return Codes 209
Appendix D--Glossary of Terms 211

FIGURES

1. ANNIE and WDM System Interactions and Functions 4
2. Basic Screen Layout and Commands for ANNIE 8
3. Upper-Level Branches of the ANNIE Option Tree 18
4. ANNIE/ARCHIVE Option Tree 19
5. ANNIE/DATA Option Tree 31
6. ANNIE/FILE Option Tree 106
7. ANNIE/GRAPHICS Option Tree 109
8. ANNIE/SELECT Option Tree 166
B.1. Example TERM.DAT 205

TABLES

1. Recommended Values for TGROUP for Time Series of a Given Time Step and Record Length 13
2. Mathematical Functions Available in Generate/Compute Option 75
3. Summary of Limiting Factors for Graphics Features 109
B.1. TERM.DAT Parameters 203
B.2. MENCRA Values and Corresponding Program Response 204
B.3. TERM.DAT Parameters for Color Display (DOS-based Computers) 205
B.4. Codes Used for Nonprinting Characters in a Log File 206
B.5. Description of Example Log File 206

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By Kathleen M. Flynn[1], Paul R. Hummel[2], Alan M. Lumb[1], *and* John L. Kittle, Jr.[3]

ABSTRACT

ANNIE is an interactive computer program that helps users interactively store, retrieve, list, plot, check, and update spatial, parametric, and time-series data for hydrologic models and analyses. ANNIE is written in Fortran and designed for portability to mainframe computers, minicomputers, and microcomputers. A binary, direct-access file is used to store data in a logical, well-defined structure and is called a Watershed Data Management (WDM) file. Many hydrologic and water-quality models and analyses developed by the U.S. Geological Survey and the U.S. Environmental Protection Agency currently use a WDM file. The WDM file provides the user with a common data base for many applications, thus eliminating the need to reformat data from one application to another.

This document is the user's guide for the May 1995 version of ANNIE and replaces the 1990 manual "Users Manual for ANNIE, a Computer Program for Interactive Hydrologic Analyses and Data Management" (Lumb and others, 1990). It describes the various functions of the ANNIE program and how to use ANNIE and the WDM file. Detailed examples of many ANNIE options show what the user will see on the screen, the responses to be entered, and the results produced.

[1]U.S. Geological Survey
[2]Aqua Terra Consultants
[3]Consultant

CHANGES FROM PREVIOUS VERSION

There are two major changes from the previous version of ANNIE. First, the user interface has been replaced by a full-screen user interface that utilizes the function keys and arrow keys to move within screens and to the next or previous screen. Second, the statistical routines were placed in the separate companion programs PEAKFQ (Flood-frequency analysis based on Bulletin 17B) and SWSTAT (Surface-Water Statistics), which are currently being written.

All WDM (Watershed Data Management) files made with the previous version of ANNIE may be used with the new version without modification. IOWDM (Input and Output for a WDM file) remains a separate program, but it is now described in a separate report.

OVERVIEW

WHAT ANNIE CAN DO

Introduction

ANNIE contains a set of procedures to organize, manipulate, and analyze data needed for hydrologic modeling and analysis. ANNIE enables the user to interactively perform tasks related to data management, tabular and graphical presentation, and input preparation for hydrologic models. The relation of ANNIE to other files and systems is shown in figure 1.

Manage Data

The data-management functions are the primary component of the ANNIE system. The focal point of data-management activities is the WDM file, a direct-access data library designed to allow efficient storage and retrieval of data needed by hydrologic models that continuously simulate water quantity and quality and by hydrologic analyses, such as generalized least squares. ANNIE enables the user to interactively perform the following data-management operations:

- Create a WDM file.
- Add, modify, or delete attributes defining the data to be stored in each data set in the WDM file.
- Add, modify, or delete time-series data for data sets.
- Copy all or part of the data in one data set to another data set within the same WDM file.
- Update the WDM file by deleting or renumbering data sets.
- Export data sets from a WDM file to a text file for archiving.
- Import data sets from an archive text file to a WDM file.
- Perform selected numerical transformations on one or two time series to produce a new time series.
- Adjust the time coordinates of time-series data.

List or Table Data

As an aid to both data management and data analysis, ANNIE allows the user to display selected information from the WDM file in list or tabular format. Display capabilities include the following:

- Display a summary of data sets in a WDM file.
- List data sets that exhibit user-specified attributes.
- Display user-selected data-set attributes in list or tabular format.
- List values in a time-series data set that are within a specified time span and value range. Annual, monthly, or daily totals are optional as appropriate for the time step of the data.

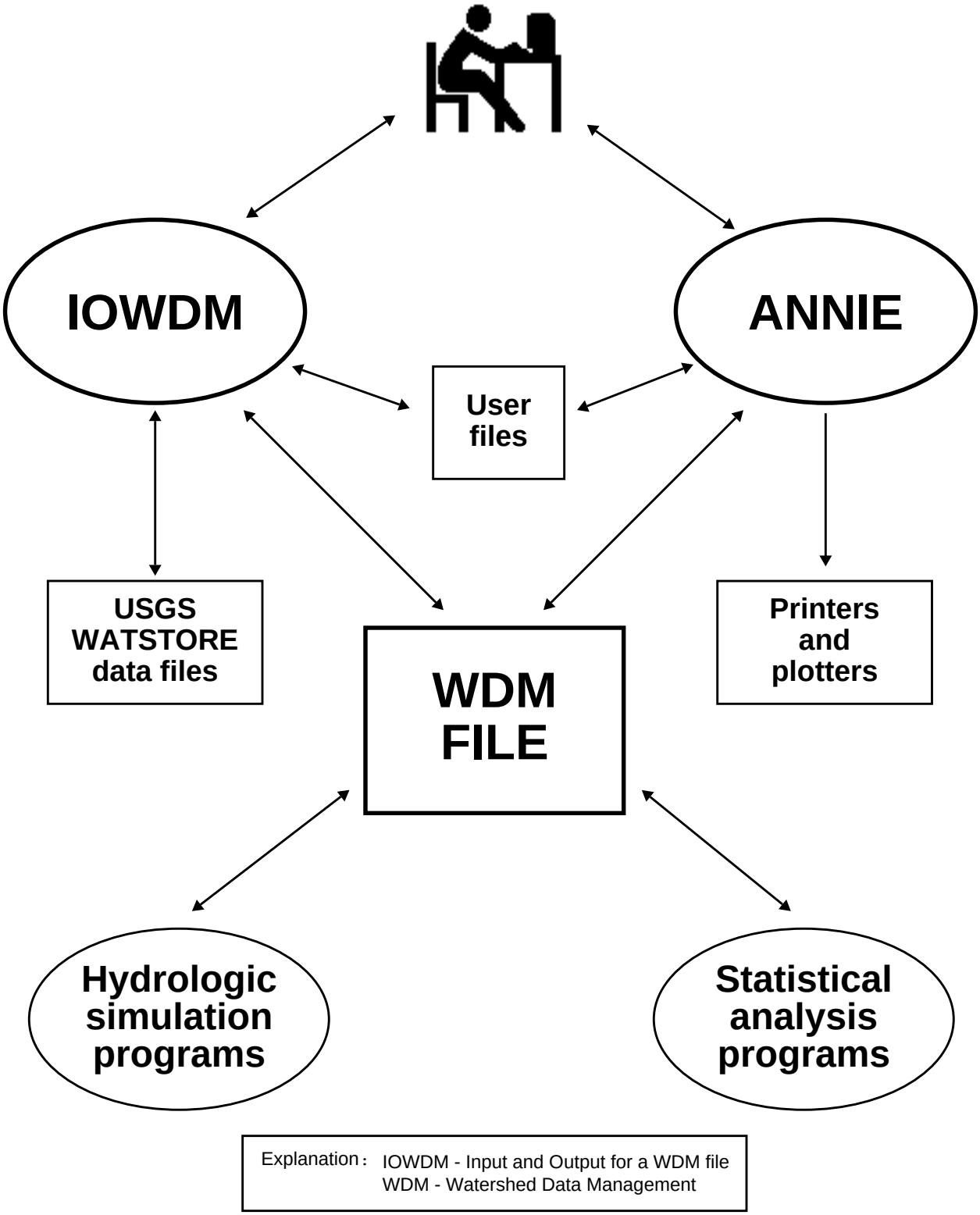


Figure 1. ANNIE and WDM system interactions and functions.

- List values in a time-series data set that are within a specified time span but outside of a value range.
- Table a year of time-series data by month and day, includes monthly total, mean, minimum, and maximum for each month.

Plot Data

Graphics capabilities in ANNIE include time plots and x-y plots, and these plots can meet Geological Survey publication standards. Graphics routines use the American National Standards Institute, Graphical Kernel System (GKS) (ANSI, 1985). Thus, the number and type of output devices depend on only the implementation of GKS on the user's system. The following options are available:

- Plot one or more time series over a specified time span from a WDM file.
- Produce x-y plots for time-matched values from one or more pairs of data sets in a WDM file.
- Produce x-y plots of attribute pairs for all data sets or a selected subset of the data sets in a WDM file.

Prepare Data for Models

The ANNIE Interactive Development Environment (AIDE) user interface used in ANNIE was designed and developed to assist the user in all aspects of hydrologic modeling and analyses (Kittle and others, 1989). The system's capabilities are not restricted to time-series data management and analysis. The WDM and AIDE libraries have been used to create programs to aid the modeler in developing input files for watershed parameter information needed by specific hydrologic, hydraulic, or water-quality models. Many other application programs are available. Contact the authors for a current list of available applications. You may also contact them if you are interested in including the WDM or AIDE libraries in an application of your own.

ACKNOWLEDGMENTS

The ANNIE user interaction and utilities and the WDM file structure have been developed, used, and modified over the past 10 years. During that time many users, agencies, and developers have made significant contributions.

Paul Duda of Aqua Terra Consultants provided new routines and modifications to many other routines.

The U.S.Environmental Protection Agency, Environmental Research Lab, Athens, Ga., has provided some of the funding for the development of ANNIE. Thomas O. Barnwell is acknowledged for his continued support throughout the project and for maintaining the excellent cooperation between the U.S. Environmental Protection Agency and the Geological Survey.

The U.S. Soil Conservation Service (now the Natural Resources Conservation Service) provided some of the funding for the initial design of the WDM file. Roger Cronshey is acknowledged for his ideas and support.

HOW ANNIE WORKS

User Interface

Program interaction takes place in a screen 80 characters wide by 24 characters high. Figure 2 shows the basic screen layout. Each screen consists of a list of available commands displayed at the bottom of the screen and one or more boxed-in areas that are referred to as panels. Commands are used to obtain additional information and to move between screens. There are three types of panels—data, assistance, and instruction. The data panel displayed at the top of the screen is always present. Data panels contain menus, forms, tables, and text to permit user interaction with the program. An assistance panel may be present depending on user or program assignments. When present, the assistance panel is displayed below the data panel (usually as the middle panel) and contains textual information, such as help messages, valid range of values, and details on program status. The instruction panel is displayed above the available commands when the user is expected to interact with the program. When present, the instruction panel contains information on what keystrokes are required to interact with the program.

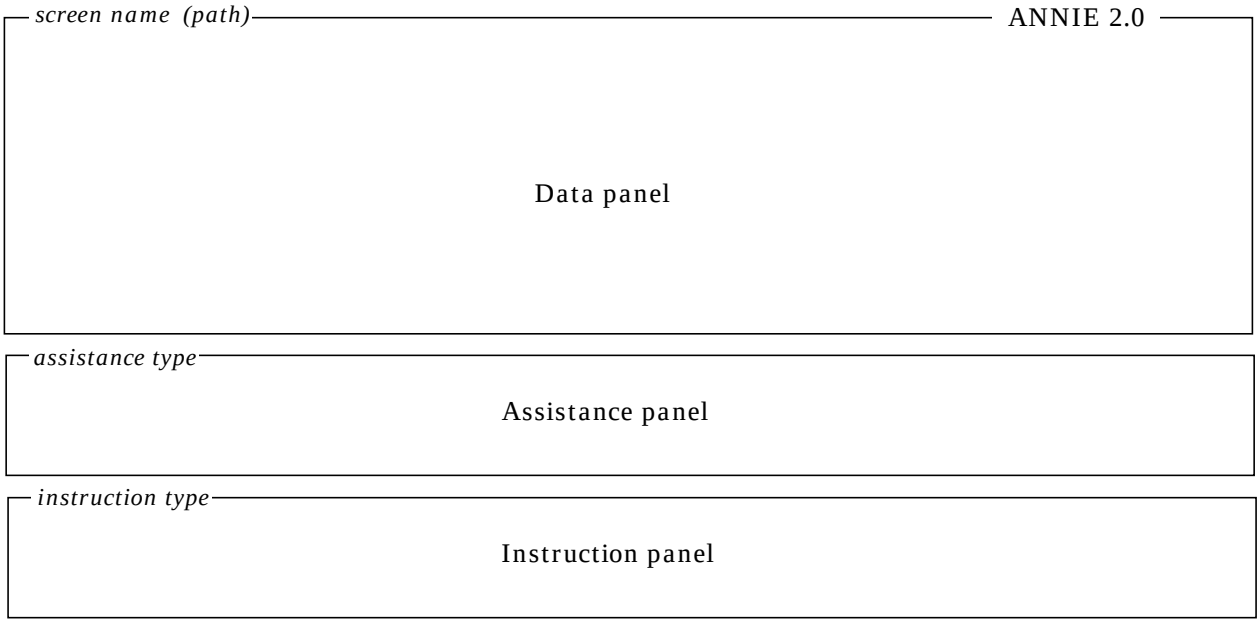
Each screen can be identified by a name and the path selected to reach the screen. The screen name appears in the upper left corner of the data panel, where the words "screen name" appear in figure 2. The first screen displayed by the program is named "Opening screen". All subsequent screens are named based on the menu option or program sequence that caused the current screen to be displayed. Screen names are followed by "(path)", a string of characters consisting of the first letter(s) of the menu options selected in order to arrive at the current screen. In some cases, descriptive text may follow the path to further help identify the screen. The path can aid in keeping track of the position of the current screen in the menu hierarchy. For example, "Open (FO)" indicates that the menu option Open was selected previously and that the path to this screen from the "Opening screen" consisted of two menu selections—File and Open.

Commands

The screen commands and their associated keystrokes are described in figure 2. A subset of the screen commands is available for any given screen. Most commands can be executed by pressing a single function key. (The designation for a function key is "F#" where # is the number of the function key.) All of the commands can be executed in "command mode". Command mode is toggled on and off by pressing the semicolon (;) key[1]. In command mode, any command can be executed by pressing the first letter of the command name; for example, "o" or "O" for the Oops command. When commands are discussed in this report, the command name is spelled out with the function key or keystroke given in parentheses. For example, Accept (F2) is the most frequently used command.

Use Help (F1) and Limits (F5) to obtain additional information about the current screen and use Status (F7) to obtain information on the state of the program. Cmhlp (;c) will display information on the available commands. Use Quiet (F8) to close the assistance panel. To move between screens, use Accept (F2), Prev (F4), Intrpt (F6), Dnpg (;d),

[1]On some systems the F3 key and (or) the escape key (Esc) may also work.



Command	Associated keystrokes[1]	Description
Help	F1 *or* ;h	Displays help information in the assistance panel. The help information is updated as the user moves from field to field in the data panel or to a different screen. The program automatically closes the assistance panel if a screen is displayed for which no help information is available.
Accept	F2 *or* ;a	Indicates that you have "accepted" the input values, menu option currently highlighted, or text message in the data panel. Selection of this command causes program execution to continue.
Cmhlp	F3c *or* ;c	Displays brief descriptions of the commands available on the screen.
Oops	F3o *or* ;o	Resets all data fields in an input form to their initial values.
Dnpg	F3d *or* ;d	Displays next "page" of text in data panel. Available when all of the text cannot be displayed at one time.
Uppg	F3u *or* ;u	Redisplays previous "page" of text in data panel. Available after execution of Dnpg (F3d).
Prev	F4 *or* ;p	Redisplays a previous screen. Any modifications in the data panel are ignored. Which screen is the previous one may be ambiguous in some cases.
Limits	F5 *or* ;l	Displays valid ranges for numeric fields and valid responses for character fields. As with the Help command, information on field limits is updated as the user moves from field to field in the data panel or to a different screen by using the arrow keys or the Enter (Return) key.
Intrpt	F6 *or* ;i	Interrupts current processing. Depending on the process, returns the program to the point of execution prior to the current process or advances to the next step in the process.
Status	F7 *or* ;s	Displays program status information.
Quiet	F8 *or* ;q	Closes the assistance panel. Available when the assistance panel is open.
Xpad	F9 *or* ;x	Opens the assistance panel as a "scratch pad." Text entered in the scratch pad is saved in a file called "XPAD.DAT".

[1]The function keys will execute the commands on most computer systems. On all computer systems, the semicolon key (";") followed by the first letter (upper or lower case) of the command can be used to execute the commands. The F3 function key may not be available on some systems.

Figure 2. Basic screen layout and commands for ANNIE.

Uppg (;u), or Top (F10). To reset the values in the data panel, use Oops (;o). Xpad (F9) is used to save typed information in a file called XPAD.DAT.

Data Panel

There are four types of data panels—menu, form, table, and text. Menus offer a choice of two or more options. Data values are entered or modified in one or more data fields of a form or table. General or specific information, program progress, messages, and results of analyses may be displayed in a text data panel. The data panel appears at the top of the screen, as shown in figure 2. There are 16 rows in the data panel when the assistance panel is closed and there are 10 rows when the assistance panel is open.

A single option is selected from a menu that consists of two or more options. There are two ways to select a menu option. Either press the first letter (not case sensitive) of the menu option; if more than one menu option begins with the same letter, press in sequence enough characters to uniquely identify the option; or use the arrow keys to move the cursor to the option and then execute Accept (F2).

Forms may contain any number and combination of character, numeric, file name, or option fields. Character fields may be a variable entry, such as a descriptive text string (case sensitive), or they may require a specific entry, such as "yes" or "no" (not case sensitive). The text string "none" in a field indicates that the field is currently undefined. Option fields are activated and deactivated by positioning the cursor in the option field and pressing any key, such as the space bar. Use arrow keys to move up, down, and laterally between fields. The Enter (Return) key is used to move forward through fields. Use Accept (F2) to accept the entered and modified data and continue with the program. Executing Oops (;o) sets all fields in the current screen to their initial values. Executing Prev (F4) will cause the data values entered on the current screen to be ignored and the previous screen to be redisplayed.

Tables may contain any number and combination of character, numeric, and file name columns. As with forms, character fields may require a specific entry or a variable entry. Use arrow keys to move up, down, and laterally between fields. The Enter (Return) key is used to move forward across rows and to the next row. Some tables may contain more rows than can be displayed in the 10 or 16 rows of the data panel. In these cases, the table is divided into multiple screens. Use Accept (F2) to move forward through each of the screens for the table and to continue with the program after the last screen of the table. Executing Oops (;o) sets all fields in the current screen to their initial values. Executing Prev (F4) will cause the data values entered on the current screen to be ignored and the previous screen to be redisplayed. Executing Intrpt (F6) will cause the data values entered on the current screen to be ignored and the remaining screens in the table to be skipped. Use Quiet (F8) to close the assistance panel and view the 16 lines of the data panel.

A text data panel may contain a warning or error message, a tabular list of data, a progress message for an activity that may take more than a few seconds, or other general information. Execute Accept (F2) to continue to the next screen. In cases where the displayed text requires more lines than the number available in the data panel, the Prev (F4), Dnpg (;d), and Uppg (;u) commands may be available to move forward and backward (scroll) through the screens. Note that the up and down arrows may also be used to move through the screens. Intrpt (F6) may be available to permit skipping the remaining screens of text.

Assistance Panel

The assistance panel provides information to help the user enter data in the data panel or to allow note taking during a program session. The panel appears in the middle of the screen below the data panel. A name corresponding to the type of assistance being provided displays in the upper left corner of the panel, where the words "assistance type" appear in figure 2. The Help (F1), Limits (F5), Status (F7), Cmhlp (;c), and Xpad (F9) commands open the assistance panel. The program may open the assistance panel to display status information. Help and Limits provide information about the current screen and data fields; Status provides information about the current process; Cmhlp provides information about the available commands; and Xpad provides a "note pad" for making notes in the file XPAD.DAT. Use Quiet (F8) to close the assistance panel.

Assistance panels display four lines at a time. In cases where the assistance information is greater than four lines, the cursor moves into the assistance panel. Use the up and down arrow keys to scroll through the information. If available, the Page Down and Page Up keys may be used to page through the information. Use the command mode toggle (;) to put the cursor back in the data panel.

Instruction Panel

The instruction panel provides information on how to interact with the current screen, such as how to enter data or how to advance to another screen. This panel appears at the bottom of the screen just above the screen commands (fig. 2). The instruction panel is present whenever the program requires input from the user. Up to four lines of text are displayed in an instruction panel. If an invalid keystroke is entered, the information in the instruction panel is replaced with an error message. In this case, the panel name (upper left hand corner) changes from the usual "INSTRUCT" to "ERROR." Once a valid keystroke is entered, the Instruct panel is redisplayed.

Special Files

Three files are associated with the interaction between the user and the program. System defaults that control how the program operates can be overridden by setting parameters in the optional TERM.DAT file. A session record is written to the ANNIE.LOG file each time the program is run; all or portions of this file can be used as input to the program at a later time. Error and warning messages, as well as some additional information, may be written to the file ERROR.FIL.

System Defaults—TERM.DAT

Certain aspects of the appearance and operation of the program are controlled by parameters within the program. These parameters specify things such as the computer system type, graphic output type, terminal type, program response to the Enter key, and colors. Each parameter is set based on the preferences of users who tested the program. The preset values can be overridden by creating a TERM.DAT file in the directory where the program is initiated (the current working directory). The available parameters and the format of the TERM.DAT file are described in Appendix B. If a TERM.DAT file does not exist in the current directory, the message "optional TERM.DAT file not opened, defaults will be used" is displayed briefly when the program starts. If the TERM.DAT file is present, the message "reading users system parameters from TERM.DAT" is displayed.

Session Record—ANNIE.LOG

The keystrokes entered during a program session are recorded in the ANNIE.LOG file. Each time the program is run, an ANNIE.LOG file is created; if one already exists in the current directory, it is overwritten. All or part of this file can be used as input to the program as a means of repeating the same or similar tasks. To do this, first save the ANNIE.LOG file under a different name. Modify the file to contain only the sequence of commands that need to be repeated. Then, at any point in a subsequent program session, press "@"; a small file name panel appears; type the name of the log file and press the Enter key. Appendix B describes the use and format of the ANNIE.LOG file.

Error and Warning Messages—ERROR.FIL

Any error or warning messages produced during a program session are written to the ERROR.FIL file. Each time the program is run, an ERROR.FIL file is created; if one already exists in the current directory, it is overwritten. Diagnostic and summary reports also may be written to this file. Examine ERROR.FIL if an unexpected program response is encountered.

THE WDM FILE

File Structure and Maintenance

The WDM file is a binary, direct-access file used by ANNIE and other programs to store hydrologic, hydraulic, meteorologic, water-quality, and physiographic data. The WDM file is organized into data sets. Each data set contains a specific type of data, such as streamflow at a specific site or air temperature at a weather station. Each data set contains attributes that describe the data, such as station identification number or time step of data, latitude, and longitude. The WDM file can contain up to 32,000 data sets. Each data set may be described by either a few attributes or by hundreds of attributes. The WDM file may contain data for all data-collection stations for a basin, for a State, or for any other grouping selected by the user.

Disk space for the WDM file is allocated as needed in 40,960-byte increments (20 records of size 2048 bytes). Data can be added, deleted, and modified without restructuring the data in the file. Space from deleted data sets within a WDM file is reused as new data are added to the file. Thus, the WDM file requires no special maintenance processing.

Types of Data

The current release of ANNIE fully supports WDM time-series data sets and data-set attributes. Additional data-set types (table, space time, vector, and text) are being used with other programs, but they are not fully managed within ANNIE. These data sets will allow storage, manipulation, and retrieval of data, such as channel cross sections and flow properties, channel profiles, channel and watershed boundary coordinates, time series for one- and two-dimensional flow models, and the text, such as the help information and forms used in the user interface.

Time-Series Data Sets

Time-series data can have time steps from 1 second to 1 year and can be grouped in periods of 1 hour to 1 century. Data are grouped for more rapid access. Data may be tagged with a quality flag to indicate missing records, estimated data, historic flood, and so forth.

Time-Series Data Compression

Time-series data are stored in a data set in one of two forms—uncompressed or compressed. The uncompressed form stores a value for every time step. The compressed form stores a value for every time step only when adjacent values are not the same or differ by more than a preset tolerance (see attribute TOLR); for adjacent values that are the same or when the difference is less than the tolerance, the value and the number of time steps with that value are stored.

Data-Set Attributes

Once data have been added to a data set, the required attributes can no longer be modified. An extensive list of optional attributes is available for further characterization of data contained in a WDM data set. The current list of required and optional data-set attributes is provided in Appendix A of this document. Optional attributes can be added to a data set at any time, but it is good practice to add them when the data set is created.

Special Time-Series Attributes

COMPFG
TOLR
VBTIME
TCODE
TSSTEP
TGROUP
TSBYR
TSBMO

Time-series data may be stored in several different patterns that affect the efficiency of data storage and retrieval. To minimize storage requirements, the attribute COMPFG should be set to 1 for data compression. If only strings of identical values are to be compressed, the attribute TOLR is not needed, otherwise a small, nonzero value for TOLR should be stored.

If the data have a constant time step, the attribute VBTIME should be set to 1 and TSSTEP and TCODE set to the time step and units, respectively. This can reduce data retrieval time by a factor of 3 or more. However, if the time step changes one or more times for a data set, VBTIME must be set to 2.

The attribute TGROUP can be used to minimize retrieval times. TGROUP establishes how the data are grouped in a data set. The software can readily locate the beginning of a data group but must read sequentially within a group for the values to be retrieved. An additional consideration is the number of data group pointers (NDP) allocated for a data set. NDP and the attribute TGROUP are set when a data set is created and cannot be modified after data have been added. With the above considerations and assuming the default NDP of 100, table 1 has been constructed as a guide to select values for NDP and TGROUP.

Table 1. Recommended values for TGROUP for time series of a given time step and record length

Time step	Length of record	Recommended TGROUP
1 second-1 minute	<=100 days	4 (days)
5 minute - daily	<=8 years	5 (months)
5 minute - daily	>8 years	6 (years)
daily	<=100 years	6 (years)
monthly	<=100 years	6 (years)
monthly	>100 years	7 (centuries)
annual	<=10,000 years	7 (centuries)

For data with daily or shorter time steps and a period of record in excess of 100 years but less than 200 years, data retrieval times will be improved by using a TGROUP of 6 (years), NDP will need to be increased to the number of years in the record, and the attribute TSBYR should be set to the starting year of the record. See the ANNIE option and example DATA/BUILD for more information on setting a value for NDP.

Selecting Data Sets

ANNIE uses data-set numbers to identify data sets to be processed. Depending on the process, you may select data sets by number, by browsing through a brief description of the data sets, or by identifying data sets with attribute values that meet selected search

criteria. Search criteria include the following logical operators: equal to, less than, greater than, not, and, and or. Each time a data set is found that has attributes satisfying the search criteria, the data-set number is added to a buffer. The buffer is simply a list of data-set numbers. As data-set numbers are found, they are continually added to the buffer until the entire buffer is full. Most implementations of ANNIE set the buffer capacity at 300. During the selection process, you can drop, list, or numerically sort data-set numbers in the buffer.

Processing options in ANNIE, such as List, Modify, and Table, look in the buffer for data sets to be used. If no data-set numbers are found in the buffer, you are asked to select them. If you know which data-set numbers you wish to use for an analysis, use the ADD option to put the numbers in the buffer; if not, you should use the BROWSE or the FIND option to enter the data-set numbers. Further details on the use of search criteria for selecting data sets based on attribute values are provided in the description of the SELECT-FIND and SELECT-BROWSE options later in this document.

In conjunction with subsequent instructions, the above discussions should provide the user with sufficient understanding of the WDM file structure and operation. Additional discussion is presented in the paper entitled "Data Management for Water-Quality Modeling Development and Use" (Lumb and others, 1988).

STEPS TO USE ANNIE ON A PROJECT

STEP 1. Are ANNIE and the WDM File Needed?

If a hydrologic or water-quality model or statistical analysis that reads data from or writes data to a WDM file is to be used on the project, ANNIE is required. If large volumes of time-series data are to be managed for the project, ANNIE and the WDM file might be appropriate. WDM files have been used on projects to store over 60 megabytes of data in a single file. Smaller volumes of data can often be managed more effectively with spreadsheets, relational data bases, or the data-management functions associated with statistical packages. ANNIE might also be used in a project to produce graphics that meet Geological Survey publication standards.

STEP 2. Retrieve Data and Convert Formats if Needed

Review the program IOWDM for the available formats (Lumb and others, 1990). If data exist in another WDM file, use ANNIE to EXPORT data sets from other WDM files and IMPORT data sets to your project WDM file. ANNIE can be used to input data from the terminal, but that is the hard way, unless command files of the data have been created. Hydrologic and meteorologic data retrieved from some CD-ROM's can be put in formats that IOWDM can read. Streamflow data on the Hydro-Climate Data Network are on a CD-ROM (Slack and others, 1993) that has WDM files of the data, which can be read directly when using a PC running MS-DOS.

STEP 3. Create WDM File

The shell of a WDM file must be created before data can be added. WDM files can be created with ANNIE or IOWDM.

STEP 4. Create Data Sets and Add Data

Data sets are created with a unique data-set number before data are added. The IMPORT option of ANNIE and the input formats for IOWDM create data sets automatically. If they are not created automatically, you must create them with ANNIE using the DATA and BUILD options. When creating time-series data sets, it is very important to correctly set the attributes TGROUP, COMPFG, VBTIME, TSSTEP, TCODE, and TSBYR (see SPECIAL TIME-SERIES ATTRIBUTES section). Data in WATSTORE formats and several flat file formats can be added with the program IOWDM. Data from another WDM file can be added with ANNIE using the EXPORT and IMPORT options under ARCHIVE. Data may be manually entered at the keyboard using the TIME SERIES/Add option under DATA.

STEP 5. Verify Data

Listing, tabling, and plotting can be used to view and verify the data added to your project WDM file. The List option for time series can be used to find and list time-series values that do not meet selected criteria. Plotting data is always a good way to quickly check for erroneous values. When plotting, do not pick the option to ignore values off the scale. Numeric attributes of the data, such as drainage area, station elevation, latitude, and longitude, can be plotted one against another for all stations to identify possible erroneous values.

STEP 6. Correct or Update Data

The MODIFY options for data-set attributes and time series can be used to correct the data. If time-series data are compressed (COMPFG = 1), the Copy/update option is used to correct the compressed portions of the data. The TIME SERIES/Add option under DATA in ANNIE is used to add data to the end of an existing time series. It cannot be used to insert data at the beginning or into the middle of a data set.

STEP 7. Use Data

Data in a WDM file can be used with several hydrologic models and analyses. These models are run separate from ANNIE and several can put computed time series in the WDM file. These computed time series can be tabled, listed, plotted, and analyzed with ANNIE as a model postprocessing tool. You may need to BUILD data sets with ANNIE before the model can put time series in the WDM file.

STEP 8. Archive the WDM File

The EXPORT option can be used to put all or part of a WDM file on a formatted text file or set of files for archiving. Such files can be read by editors and printed using operating system commands and should be independent of operating systems and computers. These files are often quite long and generally should not be modified.

ANNIE OPTIONS AND EXAMPLES

The following section provides a reference guide for using individual ANNIE data-management options. The option tree for ANNIE is illustrated in figure 3. For identification purposes in the text and figures, the top-level options ARCHIVE, DATA, FILE, and GRAPHICS and the SELECT option will be shown in capital letters. The second-level options immediately below these options will also be shown in capital letters; for example, OPEN below FILE. All other menu options will be shown with the first letter capitalized. When referring to character text entered in data fields in form-fill-in screens, the text will correspond in case to the case of the data field, usually uppercase. ANNIE options are organized in alphabetical order according to the menu options found in the opening menu—ARCHIVE, DATA, FILE, and GRAPHICS, followed by the SELECT option that is available throughout the program. The headers on the following pages identify these options by name, left and right justified, at the top of the page. Within each of these five main options, lower-level options are presented in alphabetical order. These lower-level options are identified by name, centered at the top of the page.

The first page of each of the five main options contains a flow chart of the branches available under the option (figs. 4-8). The RETURN option is not shown in the flow charts. The SELECT options shown in figure 3 are not repeated in the flow charts. This is followed by a general discussion of the lower-level options and, when appropriate, a short discussion of any options not described in further detail. This page is followed by the documentation and guidance for the use of the lower-level options.

The documentation and guidance provided for each option is contained in three parts:

1. response branch - the most direct sequence of menu responses that the user can select to reach this option,
2. description - discussion of the capabilities of the option and steps to follow in using the option, and
3. example - a discussion of an example application of the option and a listing of the screens associated with the example.

The examples contain a portion of an ANNIE session beginning with the last menu response in the "response branch." Each example illustrates an application of an ANNIE option. In a few cases, there are more than one example for an option. It should be noted that ANNIE offers additional capabilities for some options, which are not illustrated in the example sessions. When an option includes a table menu, usually only the final table with the modified values is shown. If an option includes input files, output files, or graphics, they are included after the interactive screens.

Return codes are found in Appendix C.

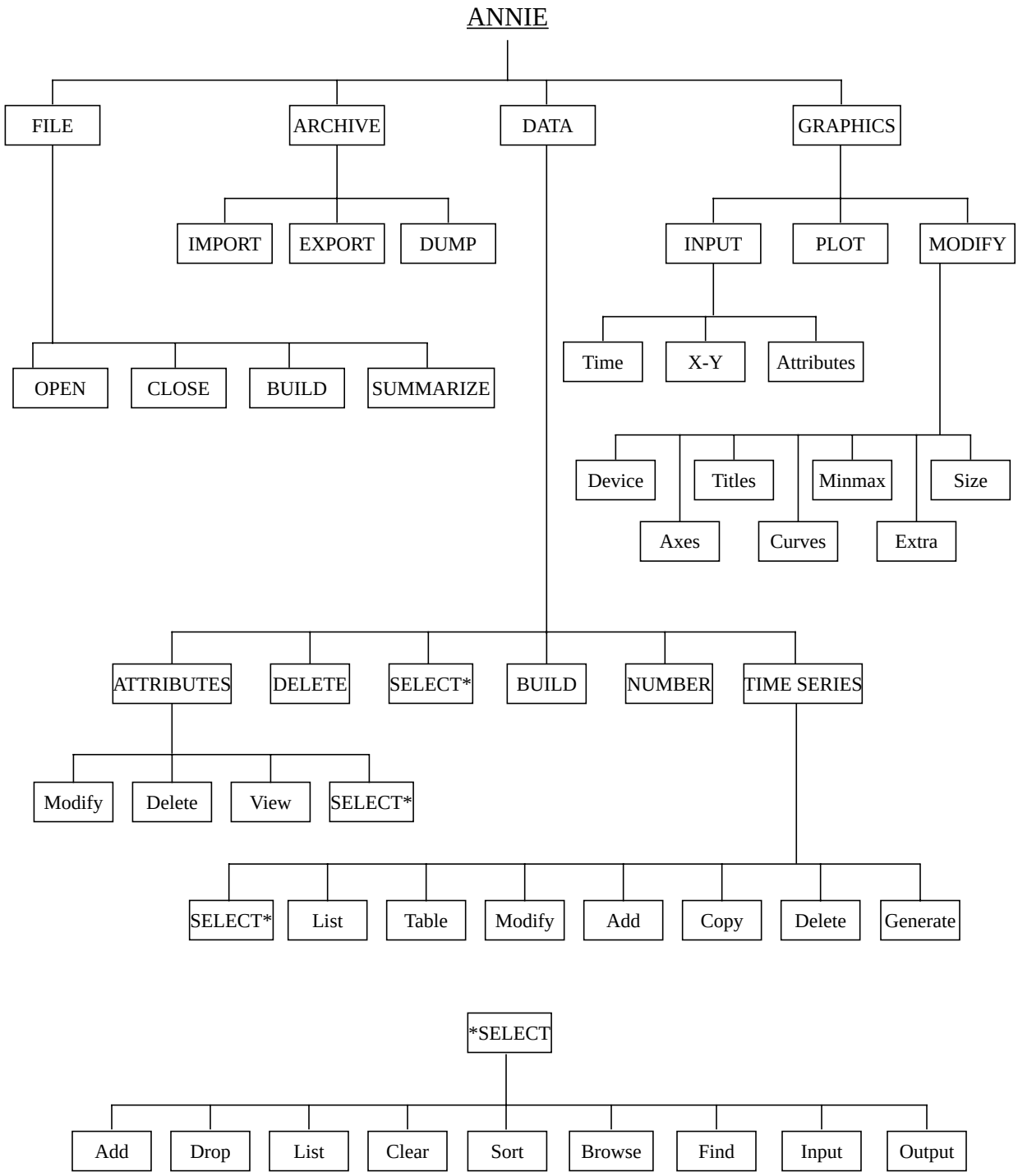


Figure 3. Upper-level branches of the ANNIE option tree.

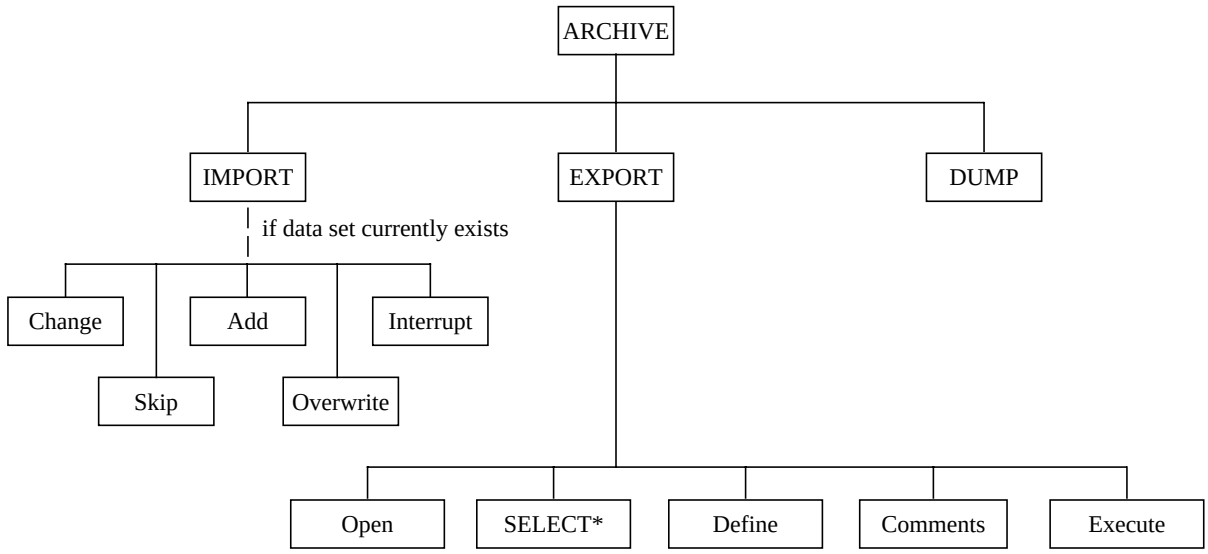


Figure 4. ANNIE/ARCHIVE option tree.

The ARCHIVE option is used primarily to move data from the binary WDM file to a text archive file so the data can be moved to a different WDM file. Data sets are EXPORTed from one WDM file and IMPORTed to a second WDM file. In ANNIE, only one WDM file may be open at a time, so EXPORT and IMPORT are needed to move data from one WDM file to another. Because binary files are not standard among different types of computers, EXPORT and IMPORT are always required to move a WDM file from one computer type to another.

The archive format is intended for transferring data between WDM files. It is not designed to be used as a data input format. It is not recommended that archive files be edited. This format is not known to be, nor intended to be, compatible with any spreadsheets and cannot be used to move data into or out of a spreadsheet.

DUMP is an option only useful for debugging and isolating problems with a WDM file and requires knowledge of the ordering of variables on the WDM file. If you are curious, you may pick a range of records and a range of positions in the records to dump to a file. The data will look strange, but that does not mean you have a bad WDM file. Each position in each record is printed to the file as an integer and decimal number and four characters.

ARCHIVE EXPORT

The EXPORT option is used to archive WDM data sets to text files so that the data may be subsequently imported into a second WDM file. This is the easiest way to transfer WDM files between different types of computers or data sets from one WDM file to another. The name of the file to be produced is required input. One or more lines of comments may be entered to more fully document the output file. All of the data sets in the WDM file or selected data sets identified in the data-set buffer may be exported. Attributes, data, or both may be exported for each data set. Required attributes are always exported with the data. For time-series data sets, a common time period may be specified for the export of data. If not, all data are exported.

1 Open an archive file to contain the exported data.

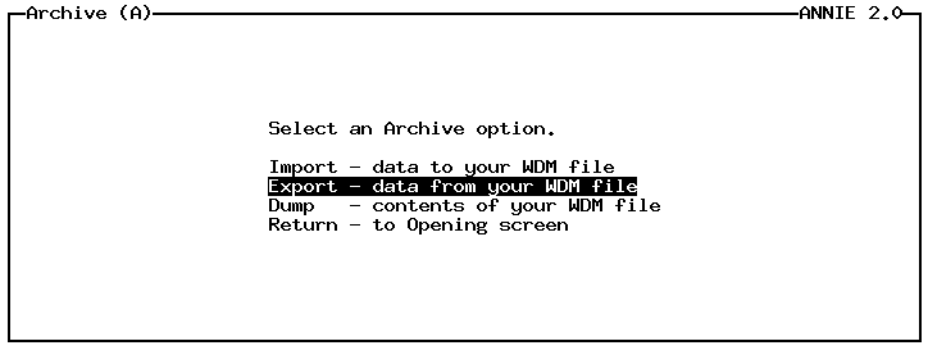
2 Select the data sets to be exported. If this option is not chosen, all of the data sets in the WDM file will be exported.

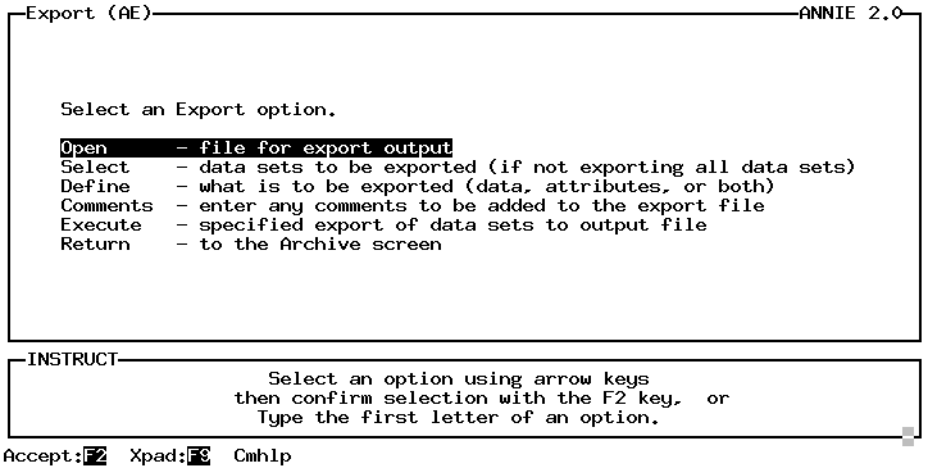
3 Define the parts of the data set(s) to be exported. By default, both the attributes and the data will be exported. Also by default, the program will pause and wait for a response between each data set exported; this will allow you to Interrupt the export process. Specifying NO for the Pause will cause all data sets to be exported without any user intervention.

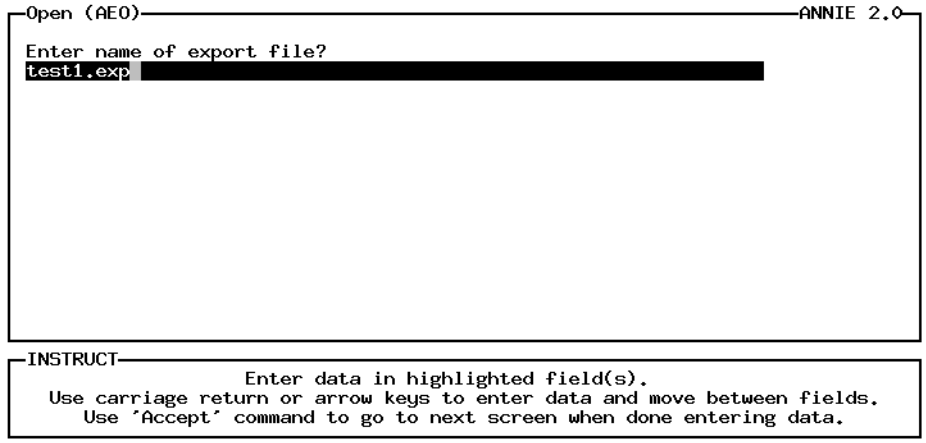
4 Comments may be added to describe the contents of the file. By default, no comments are included. Up to five lines of comments may be entered.

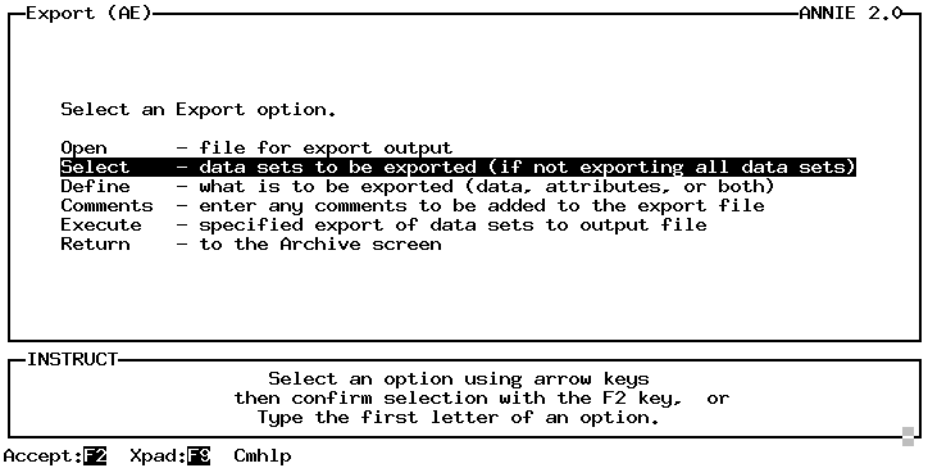
5 Execute the export. The period of record is required for time-series data sets. This may be a Common time period to be used for all of the data sets, a period to Specify individually for each data set, or All available period for each selected data set. By default, the Common period is the period of record for the first selected data set and the period to Specify is the available period for each data set.

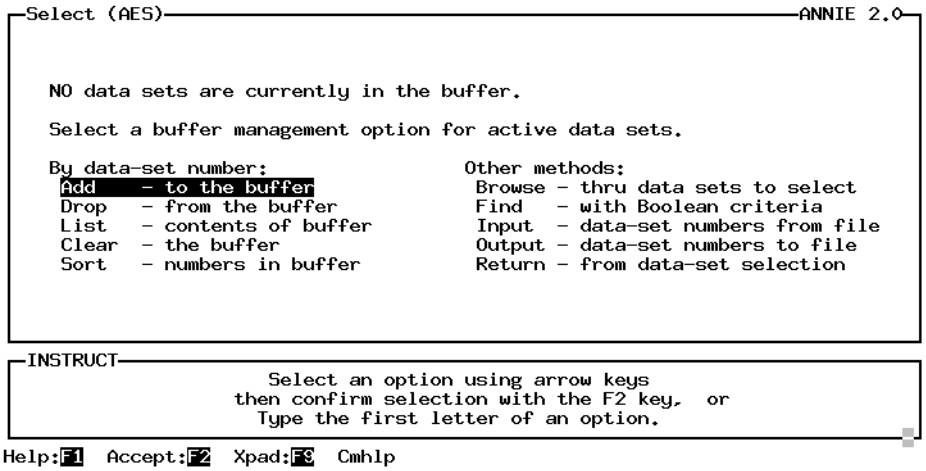
The example illustrates the export of data-sets 5, 10, and 11 to the archive file named test1.exp. Both the attributes and the time-series data were selected for export. A single comment line was entered. The period of record to be exported was the Common period March 1, 1956, through April 30, 1957 (shortened from the period January 1, 1956, through December 31, 1957, which was the available period of record for data-set number 5). A partial listing of the archive file test1.exp is found following the example of the user interaction.

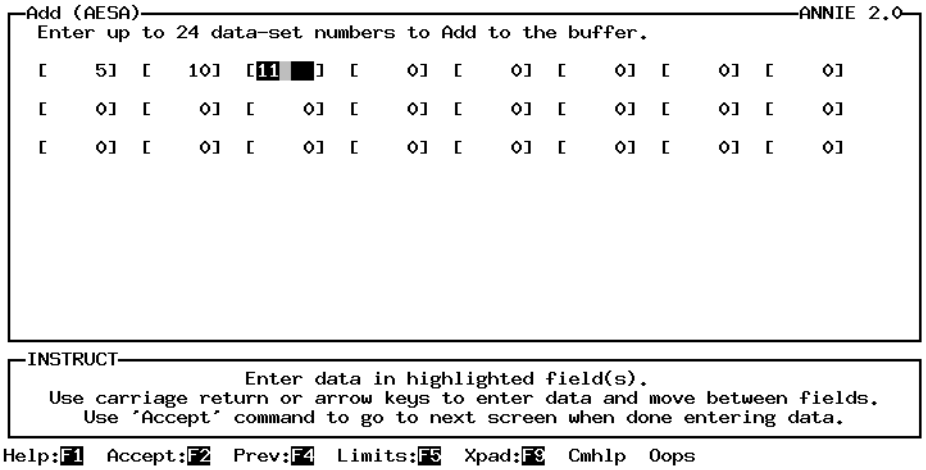

Archive (A)
ANNIE 2.0
Select an Archive option.
Import - data to your WDM file
Export - data from your WDM file
Dump - contents of your WDM file
Return - to Opening screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Xpad:F9 Cmhlp

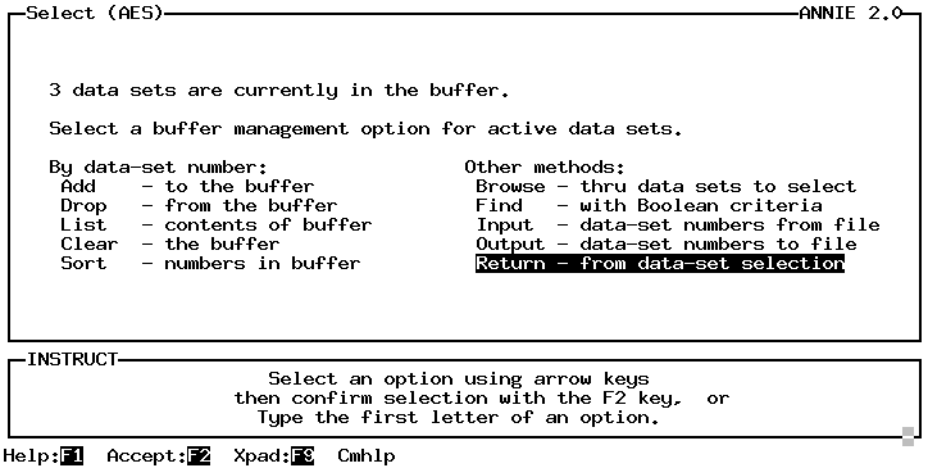

Export (AE)
ANNIE 2.0
Select an Export option.
Open - file for export output
Select - data sets to be exported (if not exporting all data sets)
Define - what is to be exported (data, attributes, or both)
Comments - enter any comments to be added to the export file
Execute - specified export of data sets to output file
Return - to the Archive screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Xpad:F9 Cmhlp

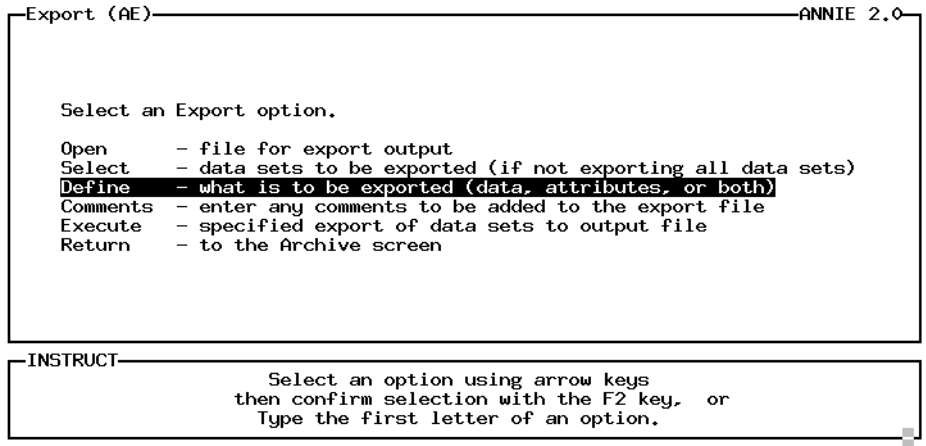

Open (AEO)
ANNIE 2.0
Enter name of export file?
test1.exp
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops

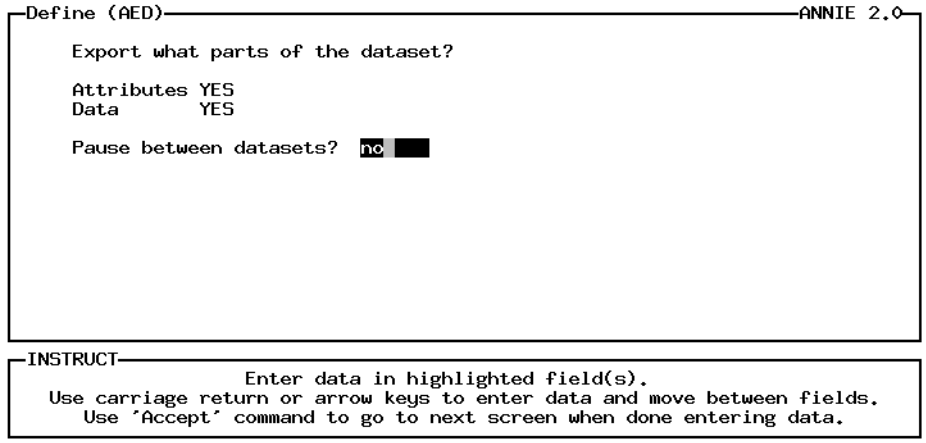

Export (AE)
ANNIE 2.0
Select an Export option.
Open - file for export output
Select - data sets to be exported (if not exporting all data sets)
Define - what is to be exported (data, attributes, or both)
Comments - enter any comments to be added to the export file
Execute - specified export of data sets to output file
Return - to the Archive screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Xpad:F9 Cmhlp

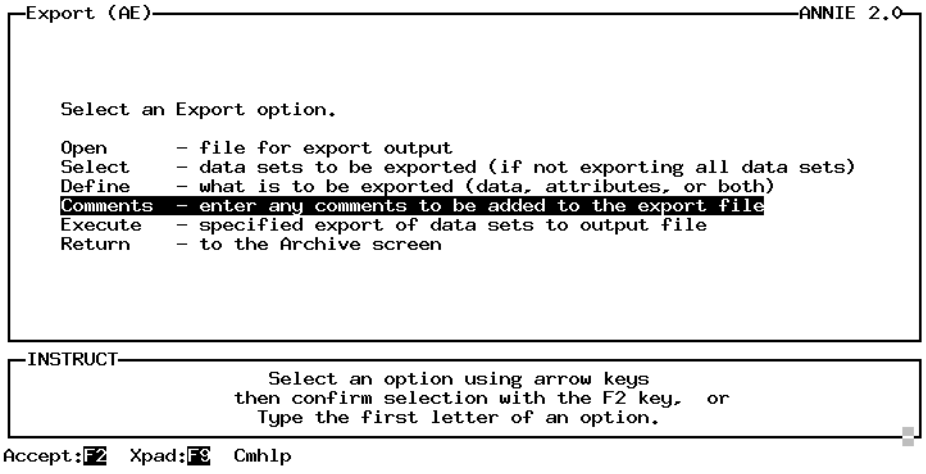

Select (AES)
ANNIE 2.0
NO data sets are currently in the buffer.
Select a buffer management option for active data sets.
By data-set number:
Add - to the buffer
Drop - from the buffer
List - contents of buffer
Clear - the buffer
Sort - numbers in buffer
Other methods:
Browse - thru data sets to select
Find - with Boolean criteria
Input - data-set numbers from file
Output - data-set numbers to file
Return - from data-set selection
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp

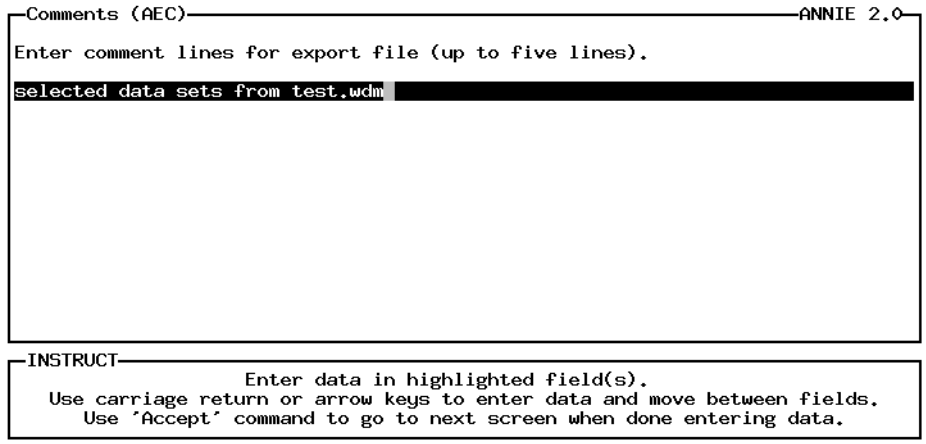

Add (AESA)
ANNIE 2.0
Enter up to 24 data-set numbers to Add to the buffer.
[5] [10] [11] [0] [0] [0] [0] [0]
[0] [0] [0] [0] [0] [0] [0] [0]
[0] [0] [0] [0] [0] [0] [0] [0]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops

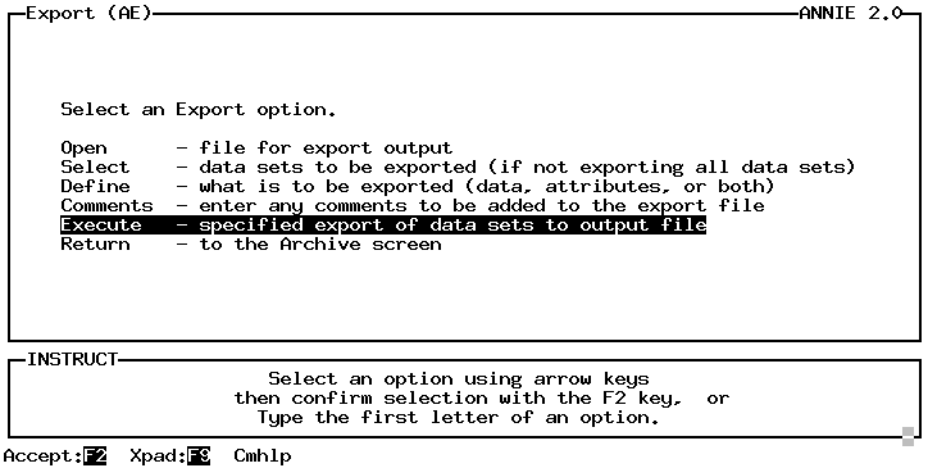

Select (AES)
ANNIE 2.0
3 data sets are currently in the buffer.
Select a buffer management option for active data sets.
By data-set number:
Add - to the buffer
Drop - from the buffer
List - contents of buffer
Clear - the buffer
Sort - numbers in buffer
Other methods:
Browse - thru data sets to select
Find - with Boolean criteria
Input - data-set numbers from file
Output - data-set numbers to file
Return - from data-set selection
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp

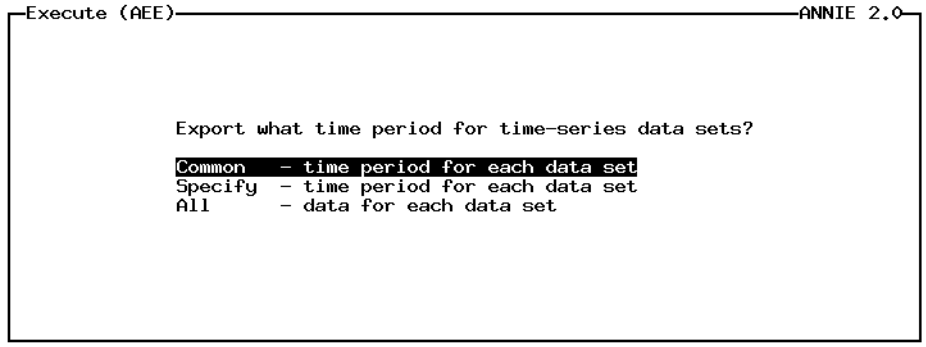

Export (AE)
ANNIE 2.0
Select an Export option.
Open - file for export output
Select - data sets to be exported (if not exporting all data sets)
Define - what is to be exported (data, attributes, or both)
Comments - enter any comments to be added to the export file
Execute - specified export of data sets to output file
Return - to the Archive screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Xpad:F9 Cmhlp

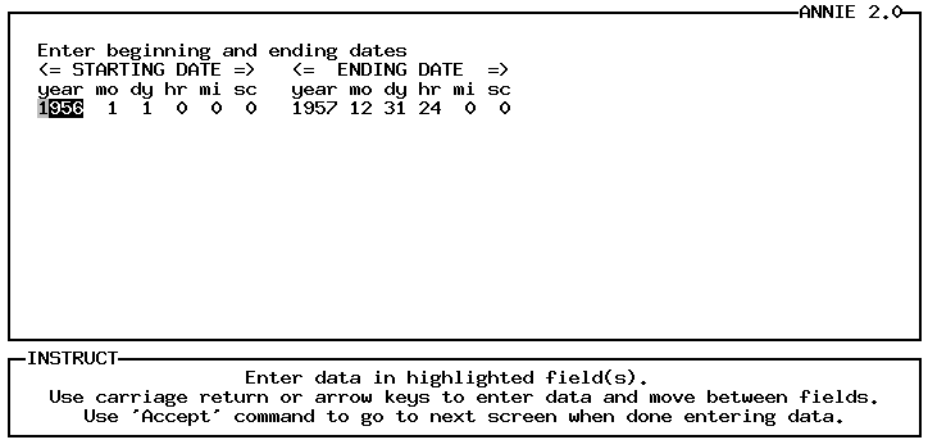

Define (AED)
ANNIE 2.0
Export what parts of the dataset?
Attributes YES
Data YES
Pause between datasets? no
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Limits:F5 Xpad:F9 Cmhlp Oops

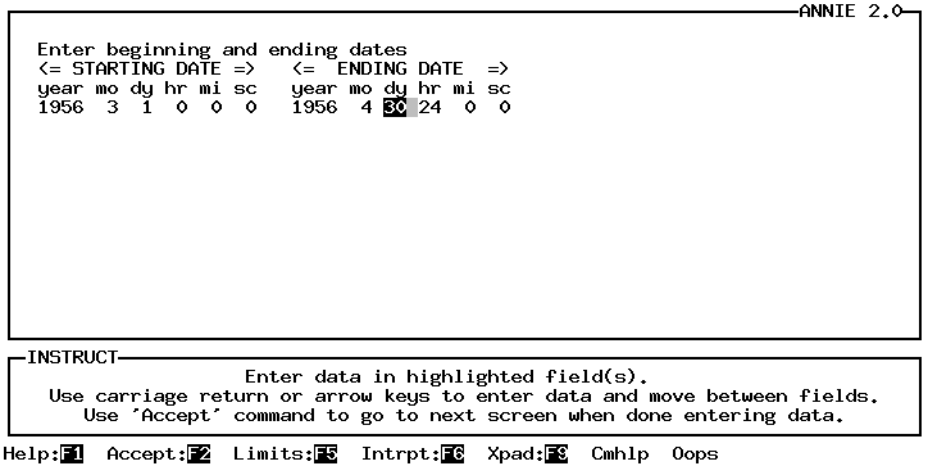

Export (AE)
ANNIE 2.0
Select an Export option.
Open - file for export output
Select - data sets to be exported (if not exporting all data sets)
Define - what is to be exported (data, attributes, or both)
Comments - enter any comments to be added to the export file
Execute - specified export of data sets to output file
Return - to the Archive screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Xpad:F9 Cmhlp

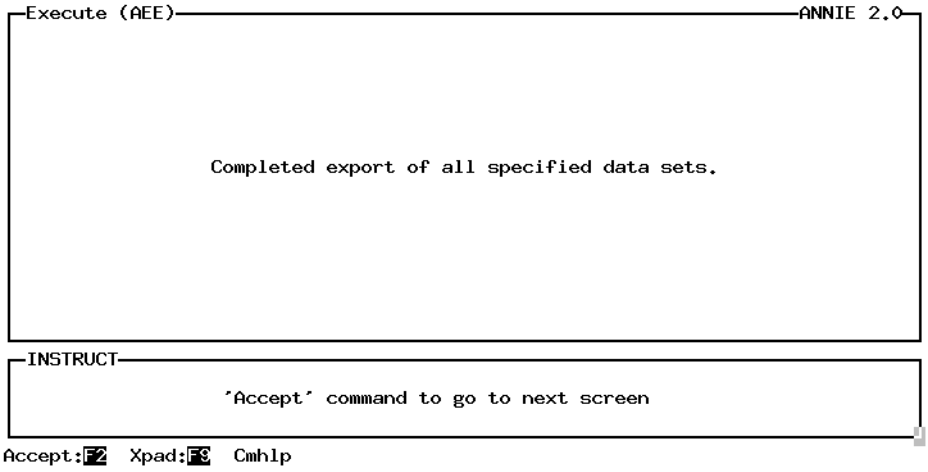

Comments (AEC)
ANNIE 2.0
Enter comment lines for export file (up to five lines).
selected data sets from test.wdm
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Accept:F2 Limits:F5 Xpad:F9 Cmhlp Oops


Export (AE)
ANNIE 2.0
Select an Export option.
Open - file for export output
Select - data sets to be exported (if not exporting all data sets)
Define - what is to be exported (data, attributes, or both)
Comments - enter any comments to be added to the export file
Execute - specified export of data sets to output file
Return - to the Archive screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Xpad:F9 Cmhlp


Execute (AEE)
ANNIE 2.0
Export what time period for time-series data sets?
Common - time period for each data set
Specify - time period for each data set
All - data for each data set
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Intrpt:F6 Xpad:F9 Cmhlp


ANNIE 2.0
Enter beginning and ending dates
<= STARTING DATE => <= ENDING DATE =>
year mo dy hr mi sc year mo dy hr mi sc
1956 1 1 0 0 0 1957 12 31 24 0 0
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops


ANNIE 2.0
Enter beginning and ending dates
<= STARTING DATE => <= ENDING DATE =>
year mo dy hr mi sc year mo dy hr mi sc
1956 3 1 0 0 0 1956 4 30 24 0 0
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops


Execute (AEE)
ANNIE 2.0
Completed export of all specified data sets.
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Xpad:F3 Cmhlp

Partial listing of archive file test1.exp:

```
DATE
WDMSFL
SYSTEM
COMMENT
  selected data sets from test.wdm
END COMMENT
DSN            5    TYPE  TIME   NDN   1   NUP   1   NSA  35   NSP  70   NDP 150
  LABEL
    TCODE          4
    TGROUP         6
    TSFORM         1
    COMPFG         1
    VBTIME         1
    TSBYR       1956
    TSSTEP         1
    PARMCD        45
    STATCD         6
    TSFILL  -99999.0
    DAREA       0.67
    STAID   365205084265702
    TSTYPE  PREC
    STANAM  Cane Branch, KY--precipitation
    AGENCY  USGS
  END LABEL
  DATA       STARTS: 1956  3  1  0  0  0  ENDS: 1956  4 30 24  0  0
    1956  2 29 24  0  0     4  1  0     3  0          0.2000      0.2500
     0.4700
    1956  3  3 24  0  0     4  1  0     3  1          0.0000E+00
    1956  3  6 24  0  0     4  1  0     2  0           1.140      8.0000E-02
    1956  3  8 24  0  0     4  1  0     2  1          0.0000E+00
    1956  3 10 24  0  0     4  1  0     8  0          5.0000E-02  0.6300
     0.8400      0.9400      5.0000E-02  0.6500      0.0000E+00  0.1300
    1956  3 18 24  0  0     4  1  0     5  1          0.0000E+00
    1956  3 23 24  0  0     4  1  0     1  0          0.5000
    1956  3 24 24  0  0     4  1  0     3  1          0.0000E+00
    1956  3 27 24  0  0     4  1  0     2  0          0.2000      3.0000E-02
    1956  3 29 24  0  0     4  1  0     3  1          0.0000E+00
    1956  4  1 24  0  0     4  1  0     6  0          0.6000      0.4000
     0.2800      0.0000E+00   1.840      3.0000E-02
    1956  4  7 24  0  0     4  1  0     2  1          0.0000E+00
    1956  4  9 24  0  0     4  1  0     1  0          4.0000E-02
    1956  4 10 24  0  0     4  1  0     3  1          0.0000E+00
    1956  4 13 24  0  0     4  1  0     3  0          0.1700       1.250
     0.1200
    1956  4 16 24  0  0     4  1  0     5  1          0.0000E+00
    1956  4 21 24  0  0     4  1  0     3  0          0.3400      0.1300
     9.0000E-02
    1956  4 24 24  0  0     4  1  0     4  1          0.0000E+00
    1956  4 28 24  0  0     4  1  0     2  0          7.0000E-02  0.2000
    .
    .
    .
   END DATA
END DSN
```

ARCHIVE IMPORT

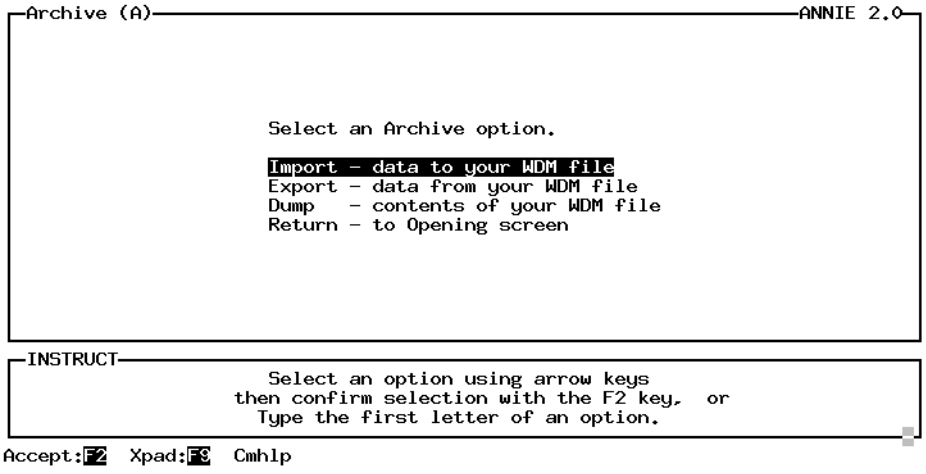
The IMPORT option is used as the second step in transferring one or more data sets from one WDM file to another. After attributes and (or) data have been exported from the first WDM file to an archive file, the IMPORT option is used to import the contents to another WDM file. As the IMPORT option executes, a message flagging the successful import of each data set contained within the external file is printed. If the data set is already present (same data-set number), you will be provided a menu with options to Change the data-set number, Skip the data set, Add the time series to the existing data set (you can only add data to the end of the time series, not the beginning or middle), Overwrite the existing data set, or Interrupt and stop the import processing.

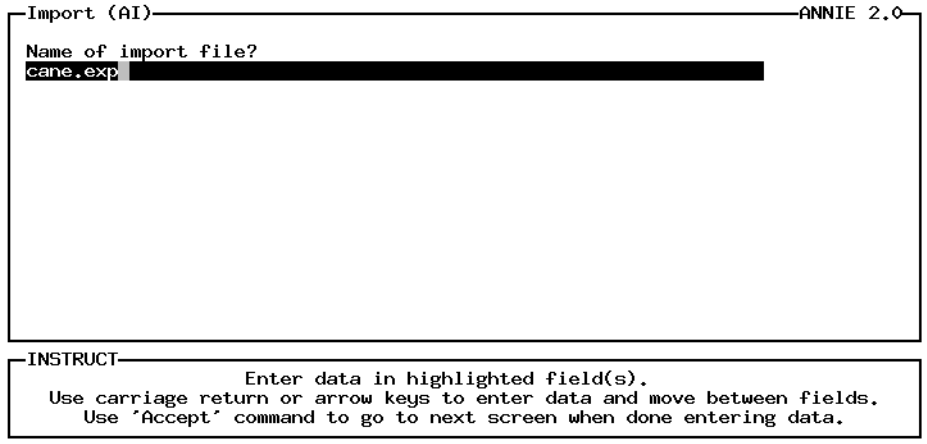
1 Enter the name of the archive file that contains the data to be imported.

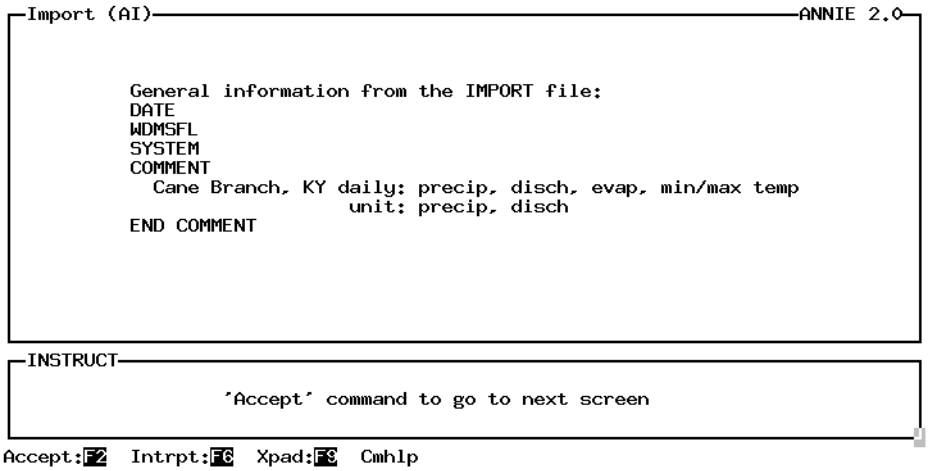
2 If a data set found in the archive file already exists in the WDM file, a processing option must be chosen:

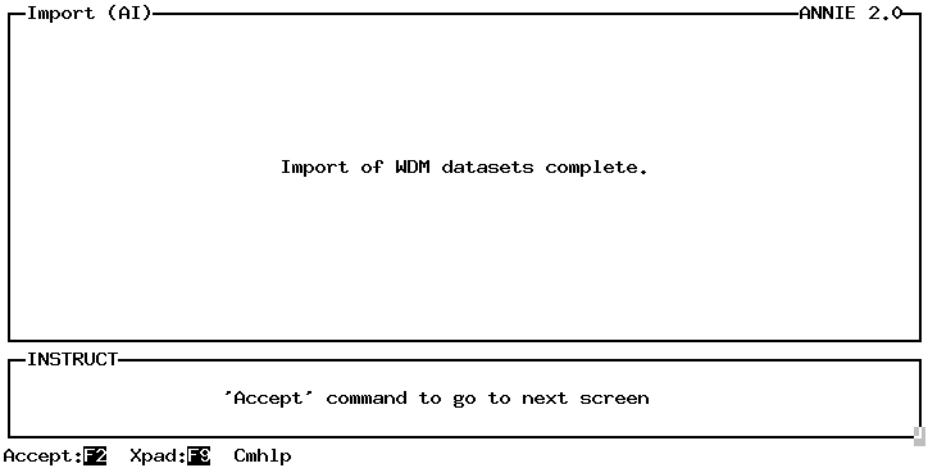
- Change - import the archived data set, but place it in a new data-set number to be specified.
- Skip - skip this data set and continue with the next data set in the archive file.
- Add - add the data from the archive file to the data set in the WDM file. The attribute data will not be read from the archive file, only the time-series data.
- Overwrite - replace the contents of the data set in the WDM file with the contents from the archive file.
- Interrupt - stop importing. Remaining data sets in the archive file will not be entered into the WDM file.

The example illustrates the import of seven data sets from the archive file named cane.exp. The IMPORT was successfully completed. If there had been any errors, a message to that effect would appear on the screen. Not shown in the example are the progress screens that flash by indicating which data set is being imported. A partial listing of the archive file cane.exp is found following the example of the user interaction.




Import (AI)
ANNIE 2.0
Name of import file?
cane.exp
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops


Import (AI)
ANNIE 2.0
General information from the IMPORT file:
DATE
WDMSFL
SYSTEM
COMMENT
Cane Branch, KY daily: precip, disch, evap, min/max temp
unit: precip, disch
END COMMENT
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Intrpt:F6 Xpad:F9 Cmhlp


Import (AI)
ANNIE 2.0
Import of WDM datasets complete.
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Xpad:F9 Cmhlp

Partial listing of archive file cane.exp:

```
DATE
WDMSFL
SYSTEM
COMMENT
  Cane Branch, KY daily: precip, disch, evap, min/max temp
                unit: precip, disch
END COMMENT
DSN            5    TYPE  TIME   NDN   1   NUP   1   NSA  35   NSP  70   NDP 150
  LABEL
    TCODE          4
    TGROUP         6
    TSFORM         1
    COMPFG         1
    VBTIME         1
    TSBYR       1956
    TSSTEP         1
    PARMCD        45
    STATCD         6
    TSFILL  -99999.0
    DAREA       0.67
    STAID   365205084265702
    TSTYPE  PREC
    STANAM  Cane Branch, KY--precipitation
    AGENCY  USGS
  END LABEL
  DATA       STARTS: 1956  1  1  0  0  0  ENDS: 1957 12 31 24  0  0
    1955 12 31 24  0  0     4  1  0    46  1        -9.9999E+04
    1956  2 15 24  0  0     4  1  0     4  0         0.2700       2.710
     0.5700       0.5800
    1956  2 19 24  0  0     4  1  0     4  1         0.0000E+00
    1956  2 23 24  0  0     4  1  0     4  0         0.7300      0.5200
     0.0000E+00  0.3500
    1956  2 27 24  0  0     4  1  0     2  1         0.0000E+00
    1956  2 29 24  0  0     4  1  0     3  0         0.2000      0.2500
     0.4700
    1956  3  3 24  0  0     4  1  0     3  1         0.0000E+00
    1956  3  6 24  0  0     4  1  0     2  0          1.140      8.0000E-02
    1956  3  8 24  0  0     4  1  0     2  1         0.0000E+00
    1956  3 10 24  0  0     4  1  0     8  0         5.0000E-02  0.6300
     0.8400       0.9400      5.0000E-02  0.6500      0.0000E+00  0.1300
    1956  3 18 24  0  0     4  1  0     5  1         0.0000E+00
    1956  3 23 24  0  0     4  1  0     1  0         0.5000
    1956  3 24 24  0  0     4  1  0     3  1         0.0000E+00
    1956  3 27 24  0  0     4  1  0     2  0         0.2000      3.0000E-02
    1956  3 29 24  0  0     4  1  0     3  1         0.0000E+00
    1956  4  1 24  0  0     4  1  0     6  0         0.6000      0.4000
    .
    .
    .
  END DATA
END DSN
```

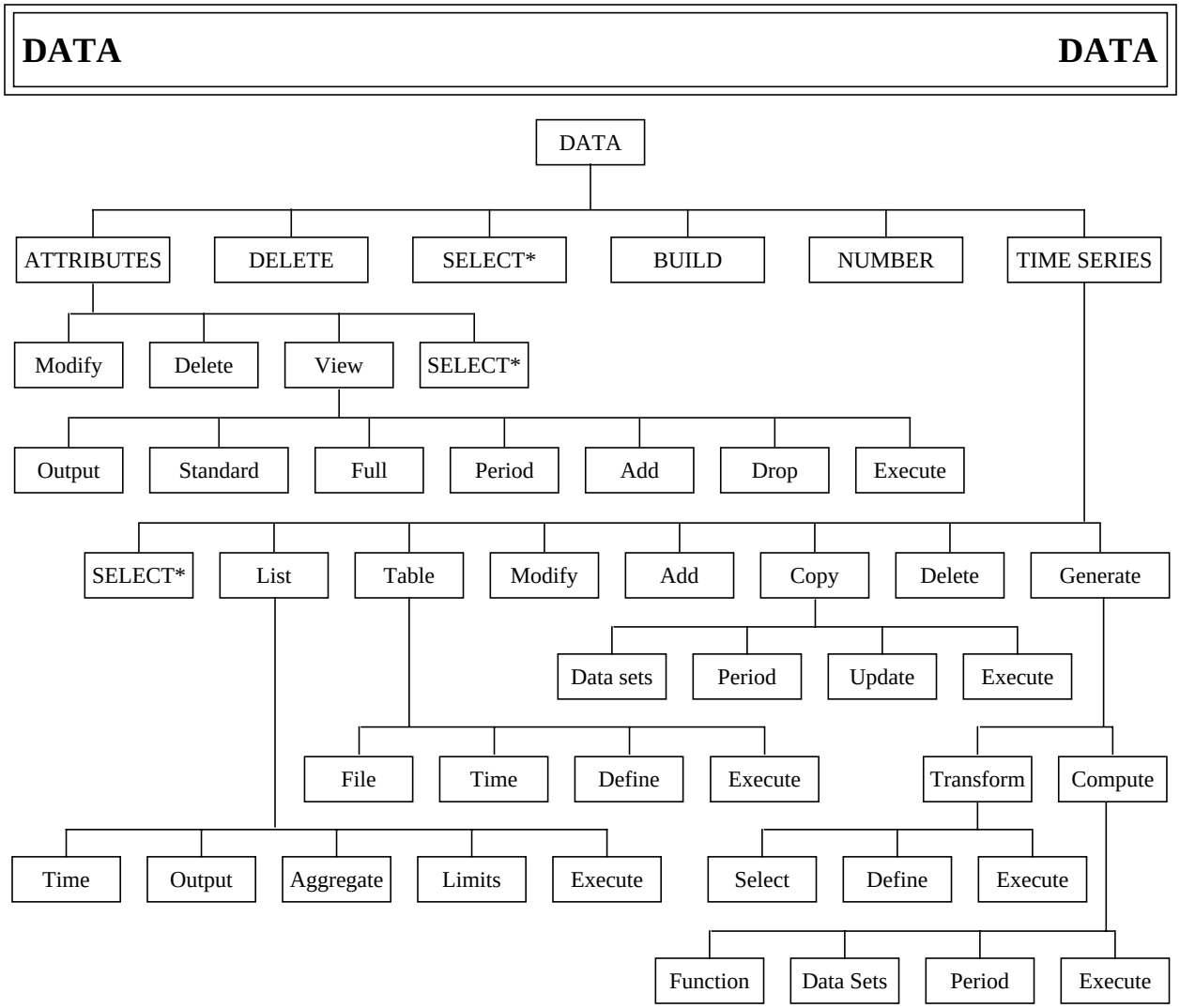


Figure 5. ANNIE/DATA option tree.

The DATA option includes the basic create, edit, and output functions for data sets and the contents of data sets. Not included in the DATA option is the loading of large volumes of data. See the IMPORT option under ARCHIVE for a description of moving data between WDM files. See the companion program IOWDM for a description of loading formatted data into a WDM file.

The higher level DATA options DELETE, BUILD, and NUMBER are for manipulating data sets. DELETE is used to delete a data set and its contents from a WDM file. BUILD is used to create a new data set in a WDM file. NUMBER is used to change the number of a data set.

The contents of data sets are viewed and manipulated using the lower level DATA options under ATTRIBUTES and TIME SERIES. Options are available to Modify (or add), Delete, and View data-set attributes. Data-set attributes, when selected in the View option, may be displayed on the screen or written to a file. Modify, Add, Delete, List, and Table options are also available for time-series data. Time series from one data set may be used to place data in a second data set by using Copy or the Generate options Transform or Compute.

The SELECT option is available on the main DATA menu as well as on the ATTRIBUTES and TIME SERIES menus under DATA. Most of the options operate on data sets already in the data-set buffer. For these options, the SELECT step is numbered 0 because the data sets are selected before the option is selected. See the section on SELECT for examples of selecting data sets. The SELECT menus will not be included in the DATA examples.

DATA ATTRIBUTES DELETE

The Delete option is used to delete one or more of the optional attribute values assigned to a data set. Once an attribute has been deleted, it cannot be recovered. Note that only the "optional" attributes may be deleted. (See Appendix A for a list of required and optional attributes.) See DATA/ATTRIBUTES/Help for a description of obtaining on-line help information for attributes.

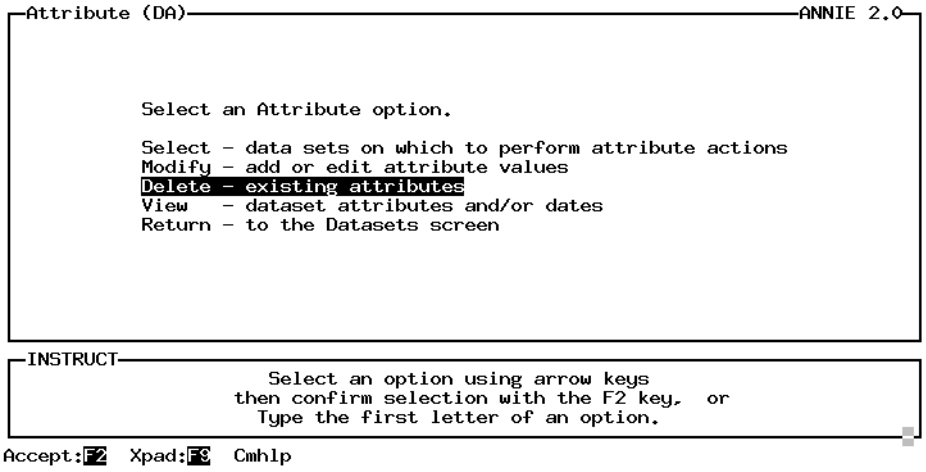
0 The Delete option requires that the data-set buffer contain the numbers of the data sets that will be modified. The data-set buffer cannot be populated under Delete; use SELECT to identify the data sets before choosing Delete.

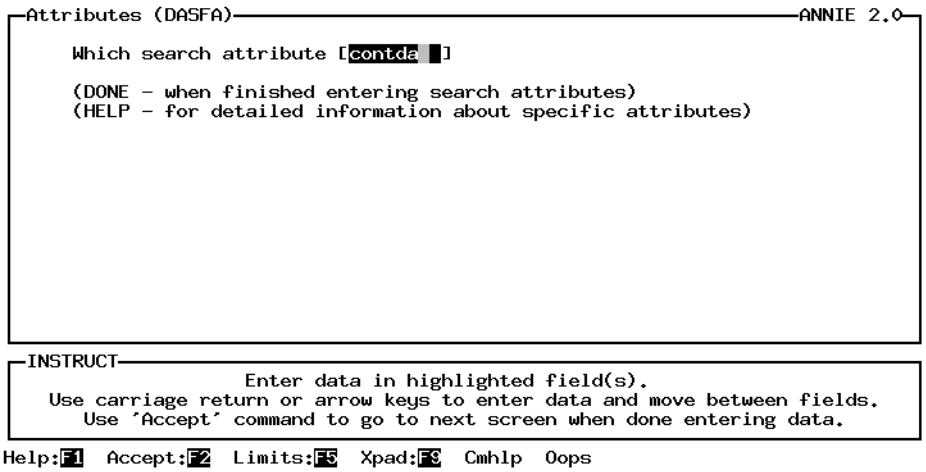
1 Identify the attributes to be deleted.

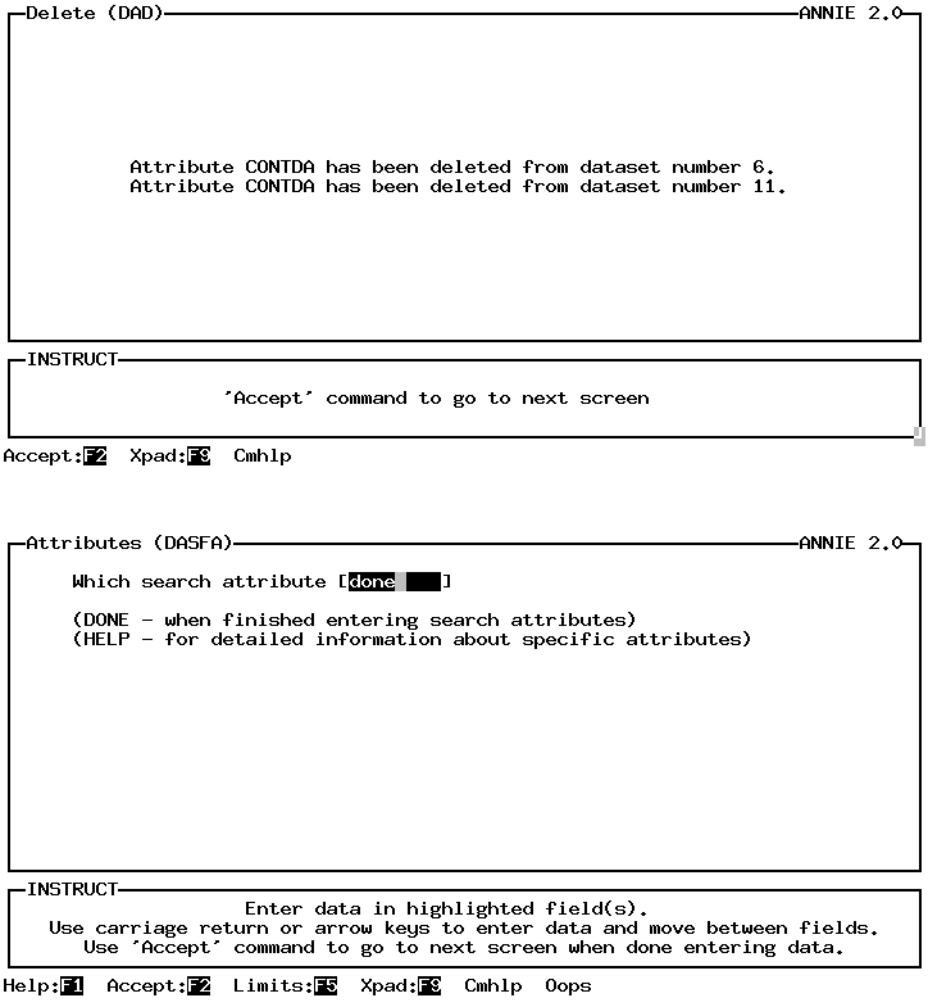
A. Enter the name of an attribute to be deleted. Enter HELP for a description of the attributes (see DATA/ATTRIBUTES/Help).

B. Repeat step A for additional attributes. Enter DONE to exit the Delete option.

In the example, the data-set buffer contains two data-set numbers, 6 and 11. The optional attribute CONTDA was deleted from the data sets.






Delete (DAD)
ANNIE 2.0
Attribute CONTDA has been deleted from dataset number 6.
Attribute CONTDA has been deleted from dataset number 11.
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Xpad:F9 Cmhlp
Attributes (DASFA)
ANNIE 2.0
Which search attribute [done]
(DONE - when finished entering search attributes)
(HELP - for detailed information about specific attributes)
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Limits:F5 Xpad:F9 Cmhlp Oops

DATA ATTRIBUTES HELP

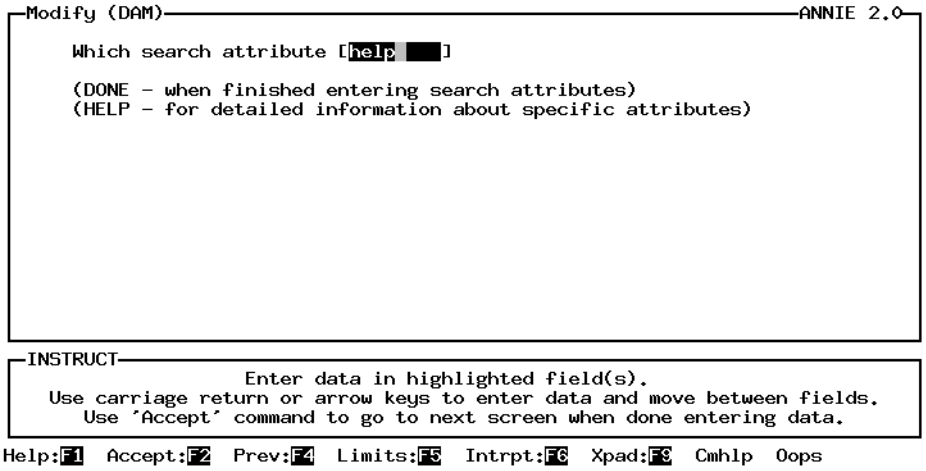
Descriptive information for attributes is available at a number of locations in the program. The detailed help includes a definition of the attribute, the valid range for the attribute value, the attribute type (Integer, Real, or Character), and the length of the attribute (generally 1 for Integer and Real, the number of characters for Character). Only enough characters in the attribute name to uniquely identify the attribute are required. When the characters are not unique, a list of possible matches is provided. See Appendix A for a complete list and description of the attributes.

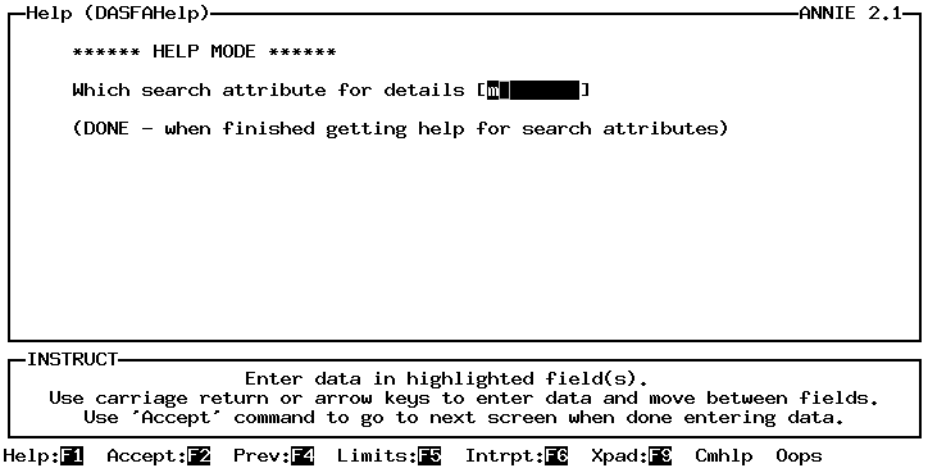
1 Identify the attribute to be described.

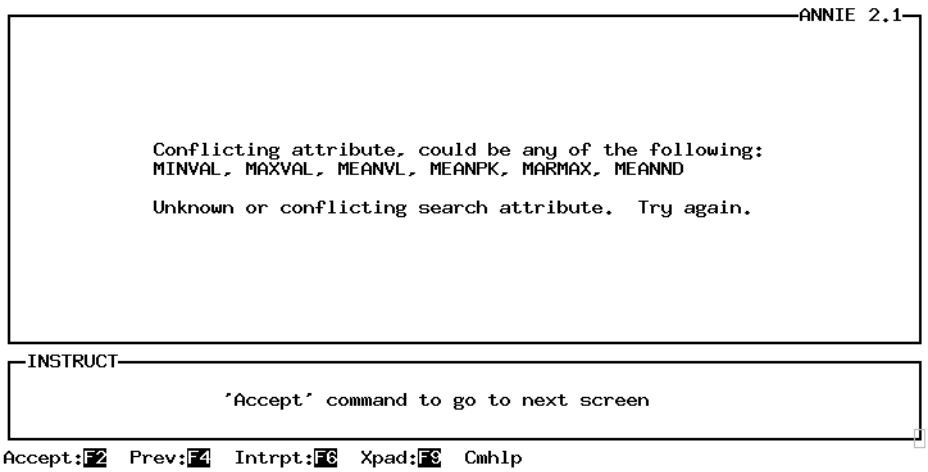
A. Enter the name of an attribute. Only as many characters as are required to uniquely identify the attribute need to be entered. If not enough characters are entered, then a list of attributes that fit the entered characters will be displayed.

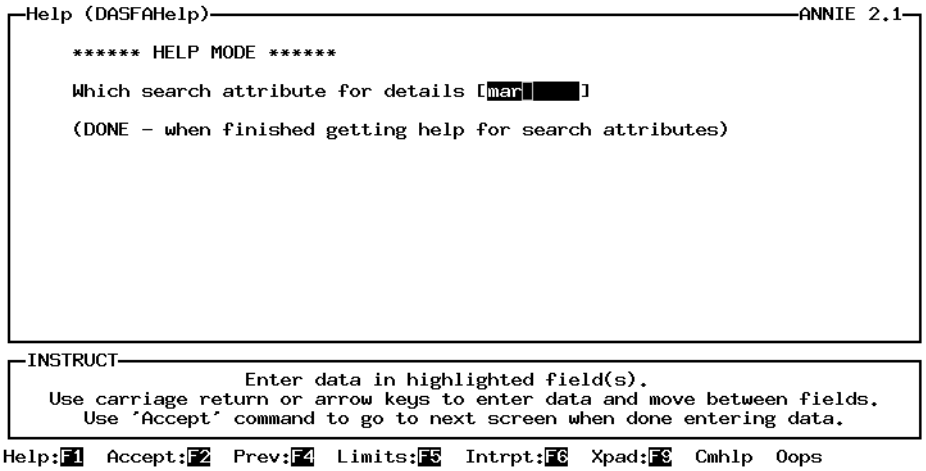
B. Repeat step A to uniquely identify an attribute or to obtain information on a different attribute. Enter DONE to exit the Help option.

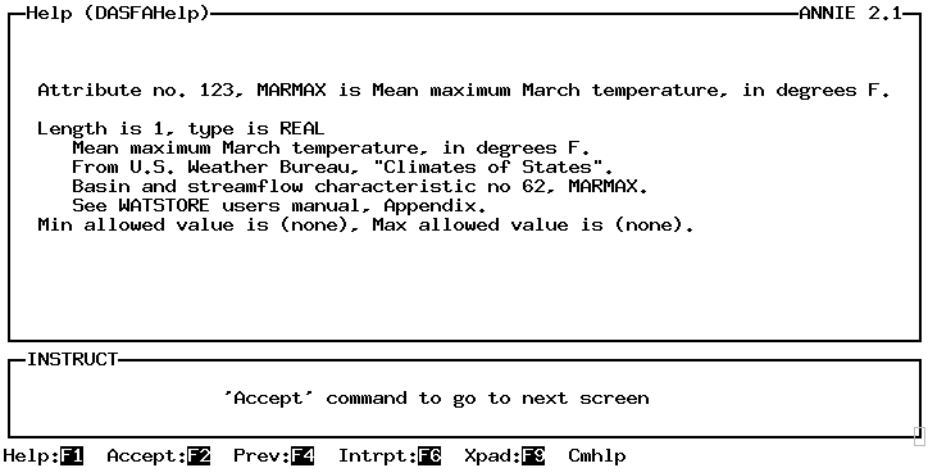
In the example, the letter "m" was entered for an attribute name. A list of the attributes beginning with "m" was displayed. The partial attribute name mar was then entered and help information for the attribute MARMAX was displayed. The help information contains the type (REAL), definition, and valid range (there is no maximum value).

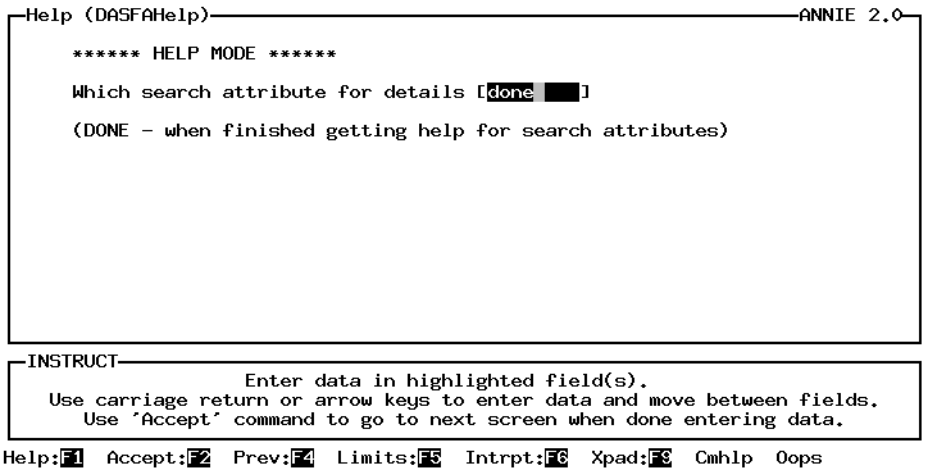



Help (DASFAHelp)
ANNIE 2.1
****** HELP MODE ******
Which search attribute for details [m]
(DONE - when finished getting help for search attributes)
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops


ANNIE 2.1
Conflicting attribute, could be any of the following:
MINVAL, MAXVAL, MEANVL, MEANPK, MARMAX, MEANND
Unknown or conflicting search attribute. Try again.
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Prev:F4 Intrpt:F6 Xpad:F9 Cmhlp


Help (DASFAHelp)
ANNIE 2.1
****** HELP MODE ******
Which search attribute for details [mar]
(DONE - when finished getting help for search attributes)
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops


Help (DASFAHelp) ANNIE 2.1
Attribute no. 123, MARMAX is Mean maximum March temperature, in degrees F.
Length is 1, type is REAL
Mean maximum March temperature, in degrees F.
From U.S. Weather Bureau, "Climates of States".
Basin and streamflow characteristic no 62, MARMAX.
See WATSTORE users manual, Appendix.
Min allowed value is (none), Max allowed value is (none).
INSTRUCT
'Accept' command to go to next screen
Help:F1 Accept:F2 Prev:F4 Intrpt:F6 Xpad:F9 Cmhlp


Help (DASFAHelp) ANNIE 2.0
****** HELP MODE ******
Which search attribute for details [done]
(DONE - when finished getting help for search attributes)
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops

DATA ATTRIBUTES MODIFY

The Modify option is used to add additional attributes to existing data sets or to change the value of attributes in data sets. Note that once data have been added to a data set, attributes describing how the data are stored cannot be modified or added. This includes such attributes as TSSTEP, TGROUP, and TSBYR. See Appendix A for a list and description of attributes. See DATA/ATTRIBUTES/Help for a description of obtaining on-line help information for attributes.

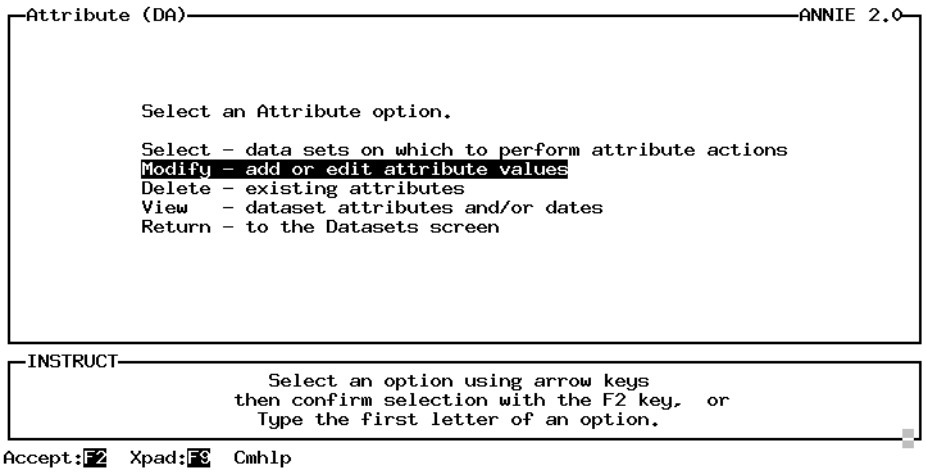
0 The Modify option requires that the data-set buffer contain the numbers of the data sets that will be modified. The data-set buffer cannot be populated under Modify; use SELECT to identify the data sets before choosing Modify.

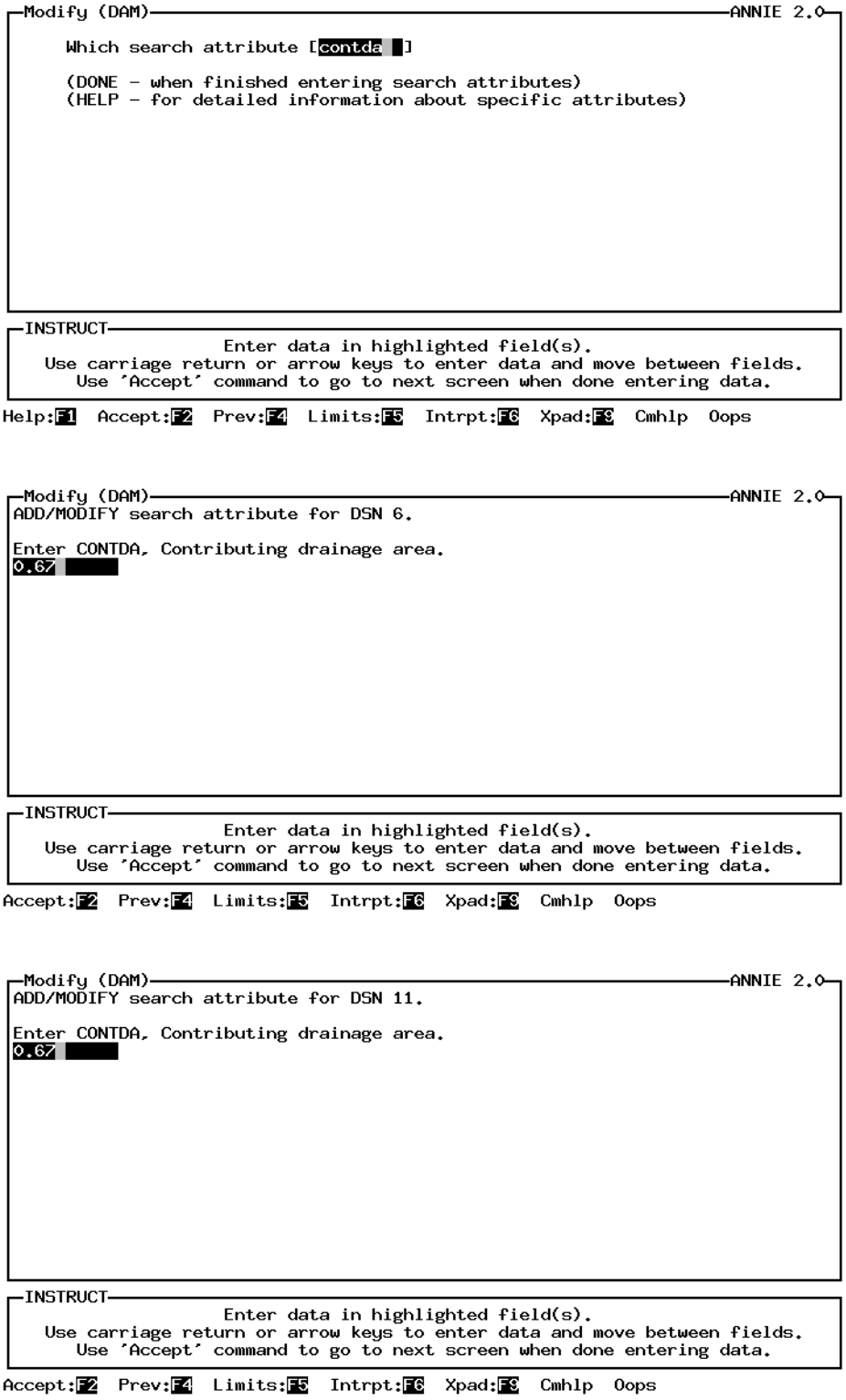
1 Identify the attribute to be added or modified. Enter HELP for a description of the attributes.

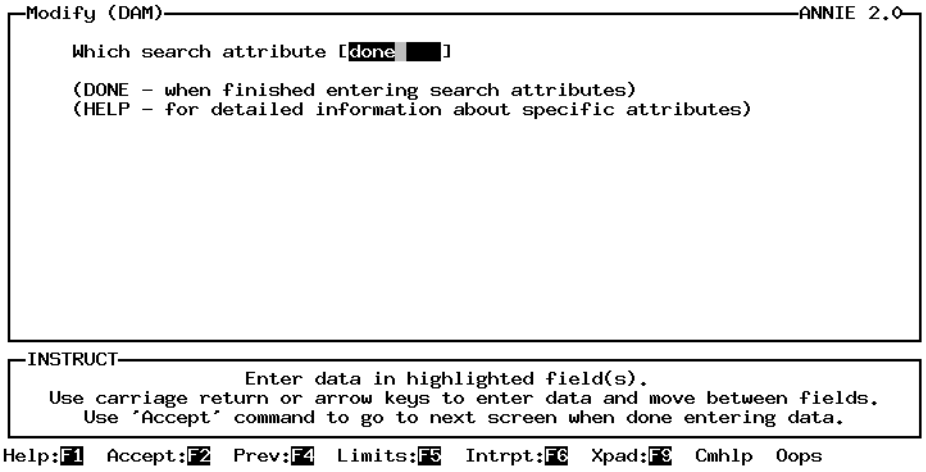
2 Enter the value for the attribute for each of the data sets identified in the data-set buffer. Note that the number of the data set being modified is listed at the top of the screen. If the attribute already exists in the data set, the current value will appear in the data field.

3 Repeat steps 1 and 2 for additional attributes, or enter DONE to exit the Modify option.

In the example, the data-set buffer contains two data-set numbers, 6 and 11. Attribute CONTDA, contributing drainage area, was added to each of the data sets.




Modify (DAM)
ANNIE 2.0
Which search attribute [contda]
(DONE - when finished entering search attributes)
(HELP - for detailed information about specific attributes)
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops
Modify (DAM)
ANNIE 2.0
ADD/MODIFY search attribute for DSN 6.
Enter CONTDA, Contributing drainage area.
0.67
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops
Modify (DAM)
ANNIE 2.0
ADD/MODIFY search attribute for DSN 11.
Enter CONTDA, Contributing drainage area.
0.67
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops


Modify (DAM)
ANNIE 2.0
Which search attribute [done]
(DONE - when finished entering search attributes)
(HELP - for detailed information about specific attributes)
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops

DATA ATTRIBUTES SELECT

The SELECT option is available from the ATTRIBUTES menu. SELECT is used to populate the data-set buffer. The data-set buffer must be populated before the Delete, Modify, and View options are chosen. The data-set buffer may be populated by choosing SELECT from the ATTRIBUTES menu, or by choosing SELECT from the DATA menu before choosing ATTRIBUTES. See the SELECT section for details of populating the data-set buffer.

DATA ATTRIBUTES VIEW

The View option is used to list or table selected attributes of data sets identified in the data-set buffer. For type time-series data sets, the available period of record may also be included. The attribute values may be viewed on the screen or saved to a file, or both. The format may be a LIST (the data-set number followed by a list of attribute names and values, one data set after another) or a TABLE (rows of data sets with columns of attribute values); see the output file listings following the example sessions. Note that as attributes are selected to be viewed, the STATUS window is updated to reflect the current list of attributes. In the case of TABLE output, the number of characters required by each attribute is listed along with the available characters left for additional attributes.

0 The View option requires that the data-set buffer contain the numbers of the data sets that will be viewed. The data-set buffer cannot be populated under View; use SELECT to identify the data sets before choosing View.

1 (Optional) Set the viewing Output format. By default, the format is viewed as a LIST to the TERMINAL. The attributes may be viewed as a LIST or a TABLE on the TERMINAL or in a FILE, or BOTH. A table viewed on the terminal is limited to 78 characters wide; a table file may be up to 250 characters wide. If BOTH or FILE output is selected, also specify the name for the output file.

2 (Optional) Select Standard to include the attributes ISTAID, STAID, TSTYPE, TCODE, and TSSTEP and the period of record. The STATUS window will be updated to include these attributes in the list to be viewed.

3 (Optional, LIST option only) Select Full to include all of the attributes in each data set in the list. The STATUS window will be updated to note that the Full set of attributes will be viewed.

4 (Optional) Select Period to include the available period of record for each of the data sets. The STATUS window will be updated to show that Dates will be included.

5 (Optional) Select Add to identify selected attributes to be included. Enter one or more attribute names. Enter HELP for a description of the attributes. Enter DONE when all of the desired attributes have been entered. The STATUS window will be updated after each attribute. In the case of TABLE output, the amount of remaining space will be included in the STATUS.

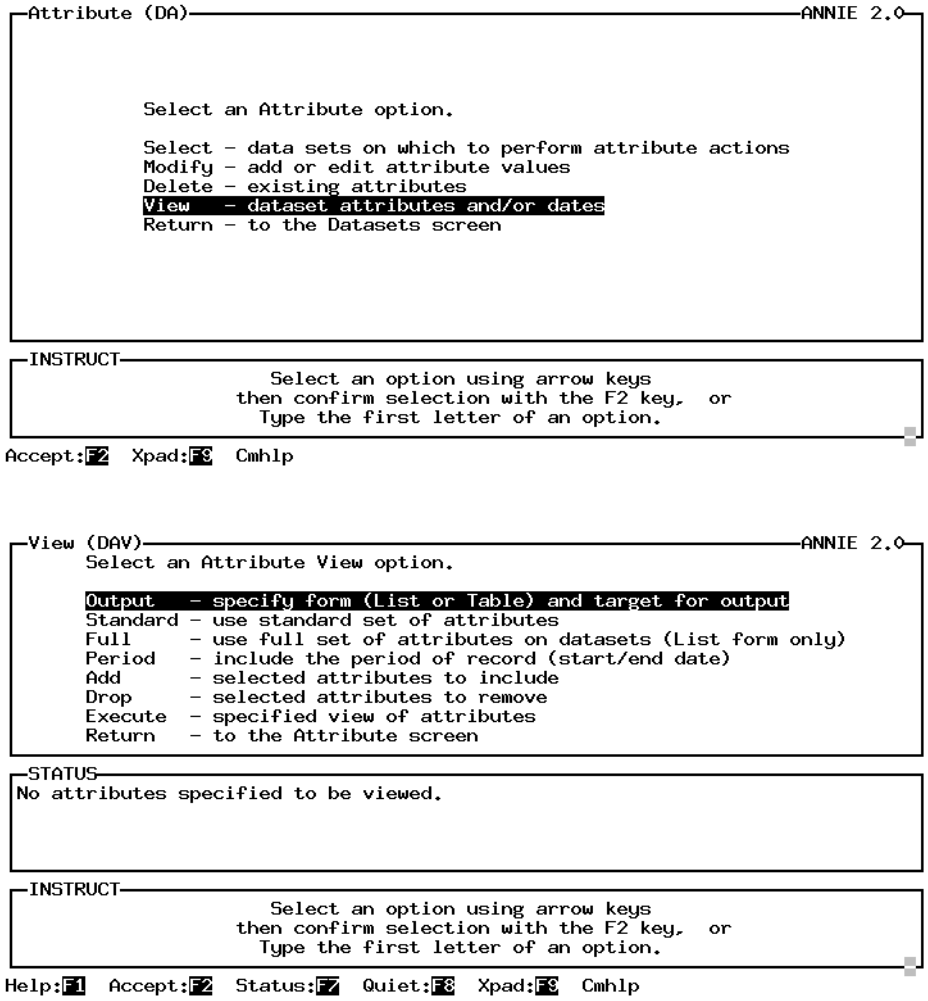
6 (Optional) Select Drop to remove a previously selected attribute from the output. Enter one or more attribute names. Enter HELP for a description of the attributes. Enter DONE when all of the desired attributes have been removed. The STATUS window will be updated after each attribute.

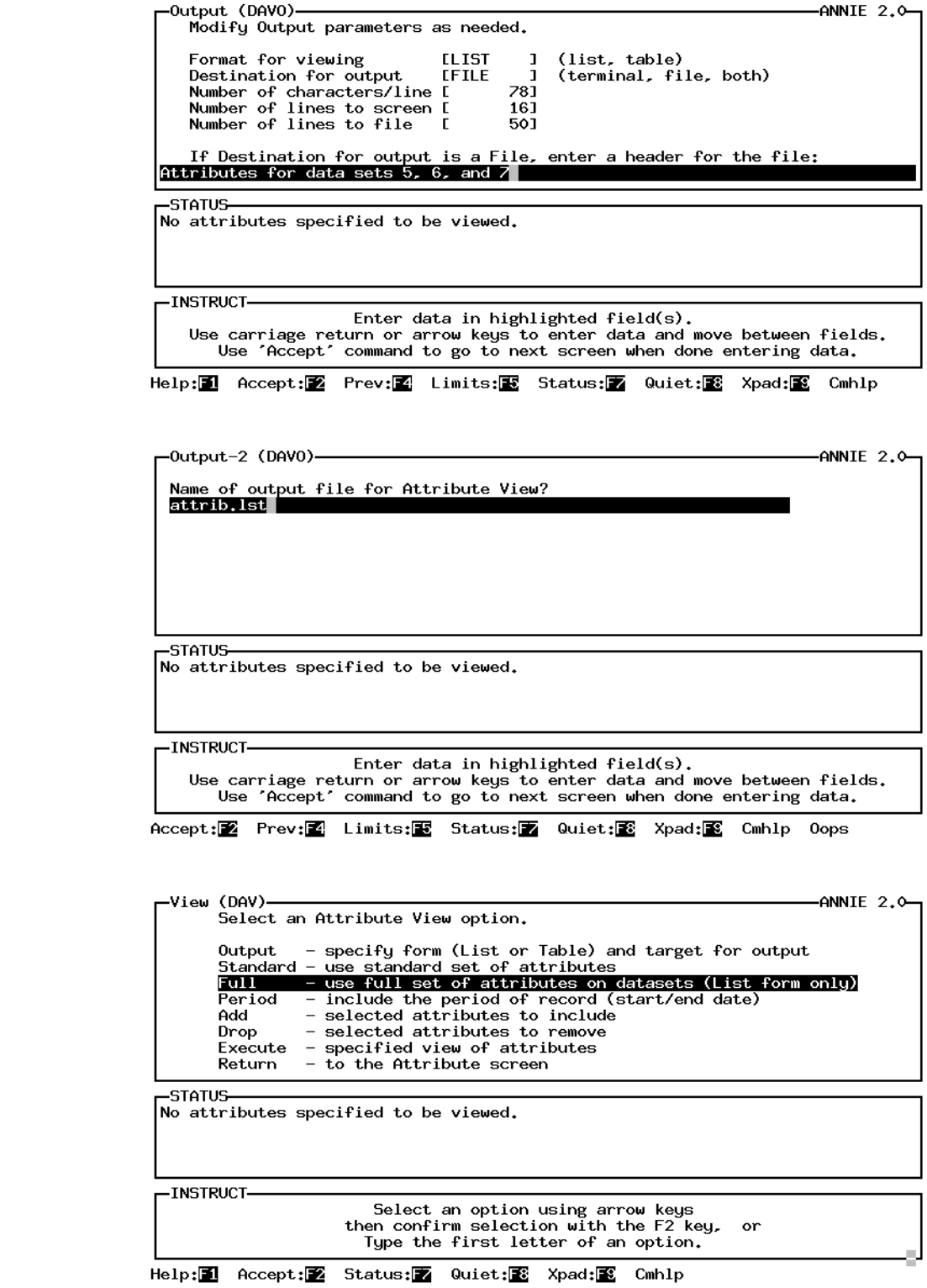
7 Select Execute to generate the LIST or TABLE. For output viewed on the terminal, execute Quiet (F8) to close the STATUS panel and lengthen the DATA window. The STATUS panel may be reopened by executing Status (F7). Execute Accept (F2) and Prev (F4) to move forward and backwards through the screens. Execute Intrpt (F6) to exit the viewing and return to the View menu.

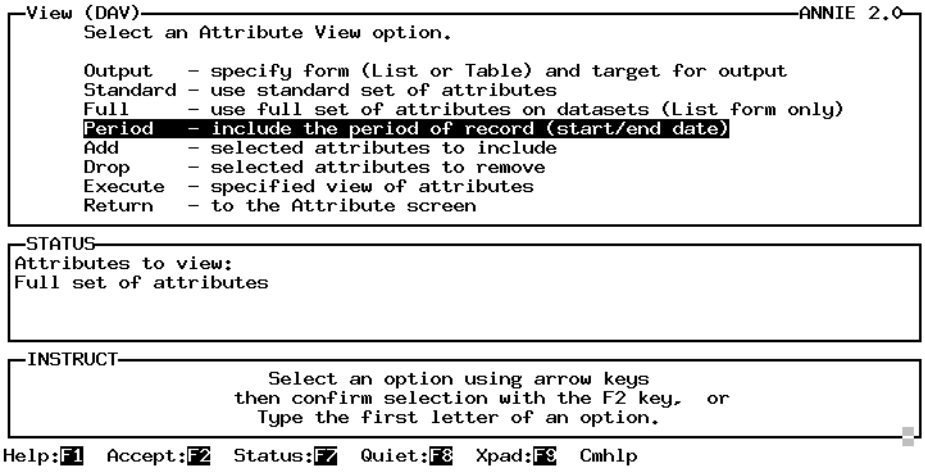
There are two examples. The first example is a LIST of attributes. The second example is a TABLE of attributes. The output files are listed after each example. In the first

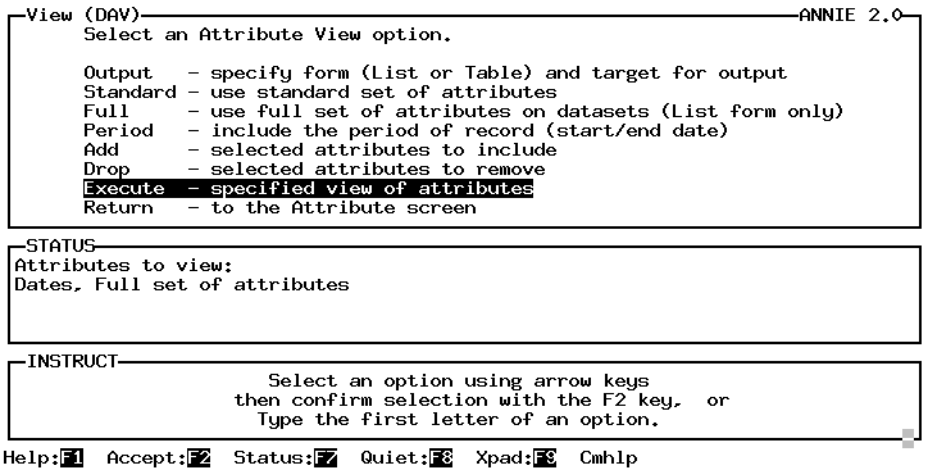
example, a LIST of attributes is output to the FILE attrib.lst; the Full set of attributes and the Period of record were included for the three data sets identified in the data-set buffer, 5, 6, and 7.

In the second example, a TABLE of attributes is output to BOTH the TERMINAL and to the FILE attrib.tbl; the Standard set of attributes was included for the 38 data sets identified in the data-set buffer. Note that only the first seven data sets in the table output are time-series-type data sets, the remainder of the data sets are table-type data sets and do not have a beginning and ending date.




Output (DAVO) ANNIE 2.0
Modify Output parameters as needed.
Format for viewing [LIST] (list, table)
Destination for output [FILE] (terminal, file, both)
Number of characters/line [78]
Number of lines to screen [16]
Number of lines to file [50]
If Destination for output is a File, enter a header for the file:
Attributes for data sets 5, 6, and 7
STATUS
No attributes specified to be viewed.
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Status:F7 Quiet:F8 Xpad:F9 Cmhlp
Output-2 (DAVO) ANNIE 2.0
Name of output file for Attribute View?
attrib.lst
STATUS
No attributes specified to be viewed.
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Accept:F2 Prev:F4 Limits:F5 Status:F7 Quiet:F8 Xpad:F9 Cmhlp Oops
View (DAV) ANNIE 2.0
Select an Attribute View option.
Output - specify form (List or Table) and target for output
Standard - use standard set of attributes
Full - use full set of attributes on datasets (List form only)
Period - include the period of record (start/end date)
Add - selected attributes to include
Drop - selected attributes to remove
Execute - specified view of attributes
Return - to the Attribute screen
STATUS
No attributes specified to be viewed.
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Status:F7 Quiet:F8 Xpad:F9 Cmhlp

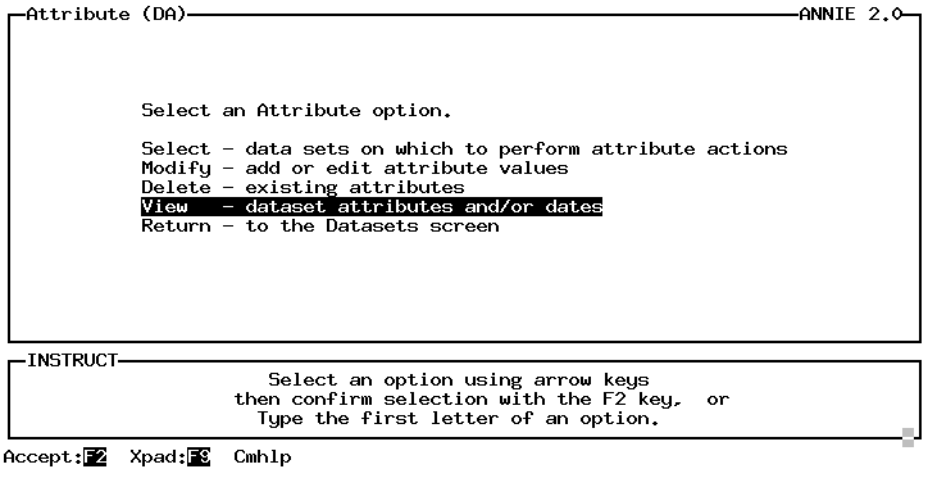


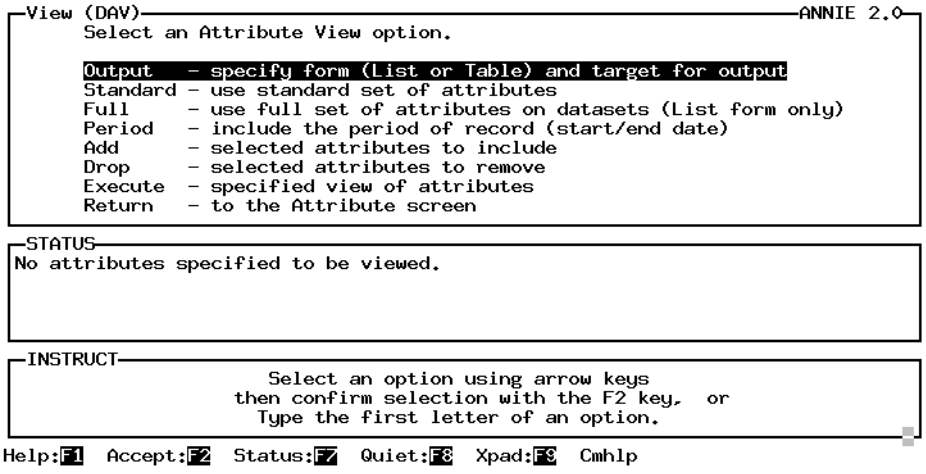


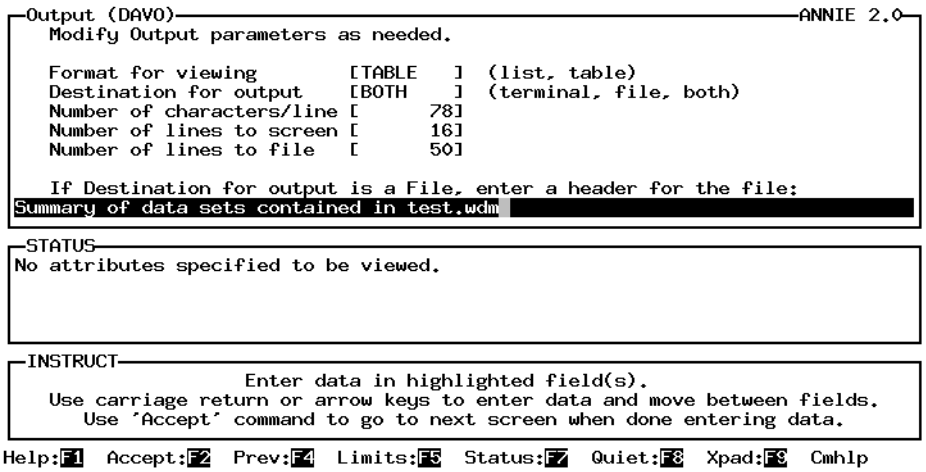
Listing of file attrib.lst:

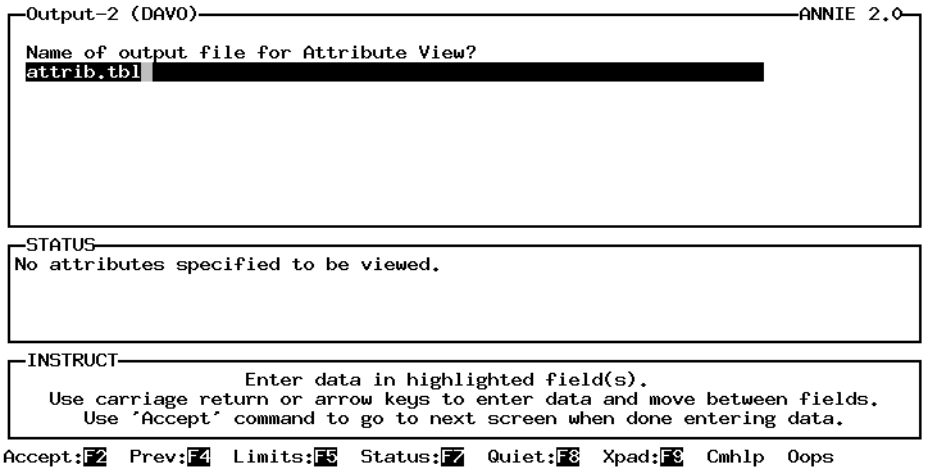
```
Attributes of DSN 5

  TCODE  :           4
  TGROUP :           6
  TSFORM :           1
  COMPFG :           1
  VBTIME :           1
  TSBYR  :        1956
  TSSTEP :           1
  PARMCD :          45
  STATCD :           6
  TSFILL :  -99999.
  DAREA  :       0.670
  STAID  :        365205084265702
  TSTYPE :        PREC
  STANAM :        Cane Branch, KY--precipitation
  AGENCY :        USGS
  Starts :        1956 JAN 1
  Ends   :        1957 DEC 31 24:00:00
```

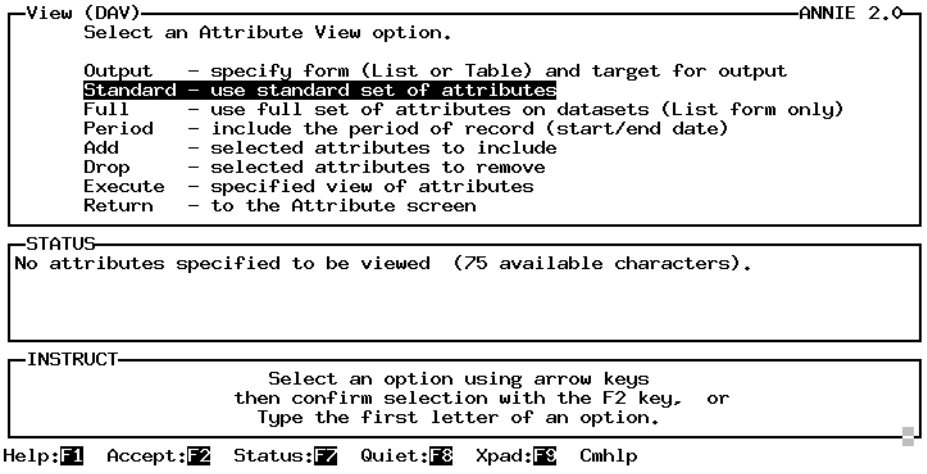
```
Attributes of DSN 6

  TCODE  :           4
  TGROUP :           6
  TSFORM :           1
  COMPFG :           1
  VBTIME :           1
  TSBYR  :        1956
  TSSTEP :           1
  ISTAID :     3407100
  PARMCD :          60
  STATCD :           3
  TSFILL :  -99999.
  DAREA  :       0.670
  STAID  :        03407100
  TSTYPE :        FLOW
  STANAM :        Cane Branch, KY--discharge
  AGENCY :        USGS
  Starts :        1956 JAN 1
  Ends   :        1957 DEC 31 24:00:00

Attributes of DSN 7

  TCODE  :           4
  TGROUP :           6
  TSFORM :           1
  COMPFG :           1
  VBTIME :           1
  TSBYR  :        1956
  TSSTEP :           1
  PARMCD :          50
  STATCD :           6
  TSFILL :  -99999.
  DAREA  :       0.670
  STAID  :        365200085090000
  TSTYPE :        EVAP
  STANAM :        Cane Branch, KY--pan evaporation
  AGENCY :        USGS
  Starts :        1956 JAN 1
  Ends   :        1957 DEC 31 24:00:00
```

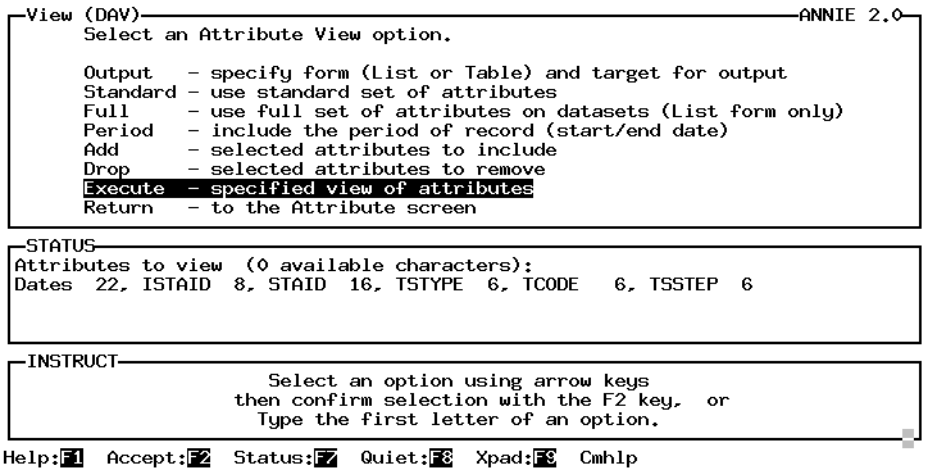


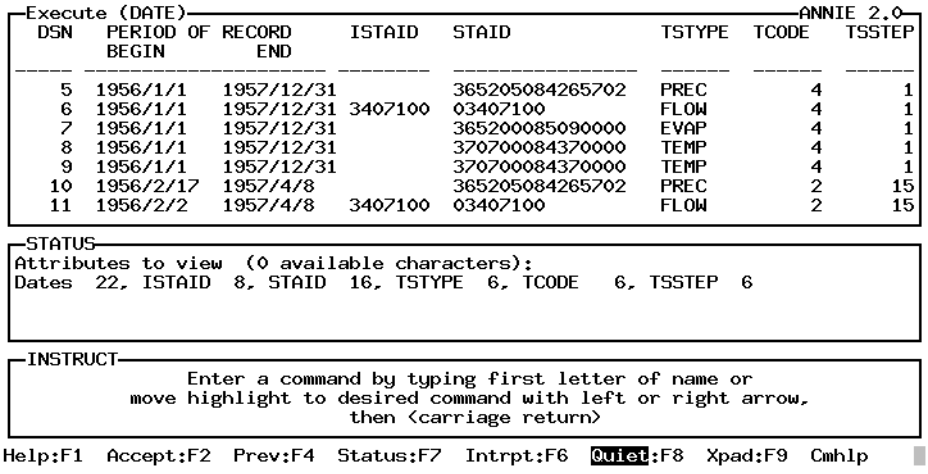

View (DAV)
ANNIE 2.0
Select an Attribute View option.
Output - specify form (List or Table) and target for output
Standard - use standard set of attributes
Full - use full set of attributes on datasets (List form only)
Period - include the period of record (start/end date)
Add - selected attributes to include
Drop - selected attributes to remove
Execute - specified view of attributes
Return - to the Attribute screen
STATUS
No attributes specified to be viewed.
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Status:F7 Quiet:F8 Xpad:F9 Cmhlp

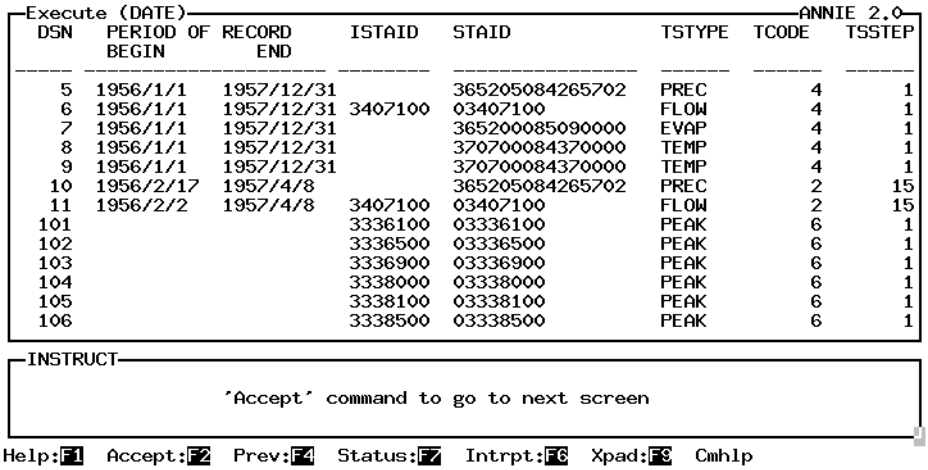

Output (DAVO)
ANNIE 2.0
Modify Output parameters as needed.
Format for viewing [TABLE] (list, table)
Destination for output [BOTH] (terminal, file, both)
Number of characters/line [78]
Number of lines to screen [16]
Number of lines to file [50]
If Destination for output is a File, enter a header for the file:
Summary of data sets contained in test.wdm
STATUS
No attributes specified to be viewed.
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Status:F7 Quiet:F8 Xpad:F9 Cmhlp


Output-2 (DAVO)
ANNIE 2.0
Name of output file for Attribute View?
attrib.tbl
STATUS
No attributes specified to be viewed.
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Accept:F2 Prev:F4 Limits:F5 Status:F7 Quiet:F8 Xpad:F9 Cmhlp Oops


View (DAV)
ANNIE 2.0
Select an Attribute View option.
Output - specify form (List or Table) and target for output
Standard - use standard set of attributes
Full - use full set of attributes on datasets (List form only)
Period - include the period of record (start/end date)
Add - selected attributes to include
Drop - selected attributes to remove
Execute - specified view of attributes
Return - to the Attribute screen
STATUS
No attributes specified to be viewed (75 available characters).
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Status:F7 Quiet:F8 Xpad:F9 Cmhlp


View (DAV)
ANNIE 2.0
Select an Attribute View option.
Output - specify form (List or Table) and target for output
Standard - use standard set of attributes
Full - use full set of attributes on datasets (List form only)
Period - include the period of record (start/end date)
Add - selected attributes to include
Drop - selected attributes to remove
Execute - specified view of attributes
Return - to the Attribute screen
STATUS
Attributes to view (0 available characters):
Dates 22, ISTAID 8, STAID 16, TSTYPE 6, TCODE 6, TSSTEP 6
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Status:F7 Quiet:F8 Xpad:F9 Cmhlp


Execute (DATE)
ANNIE 2.0
DSN PERIOD OF RECORD BEGIN END ISTAID STAID TSTYPE TCODE TSSTEP
5 1956/1/1 1957/12/31 365205084265702 PREC 4 1
6 1956/1/1 1957/12/31 3407100 03407100 FLOW 4 1
7 1956/1/1 1957/12/31 365200085090000 EVAP 4 1
8 1956/1/1 1957/12/31 370700084370000 TEMP 4 1
9 1956/1/1 1957/12/31 370700084370000 TEMP 4 1
10 1956/2/17 1957/4/8 365205084265702 PREC 2 15
11 1956/2/2 1957/4/8 3407100 03407100 FLOW 2 15
STATUS
Attributes to view (0 available characters):
Dates 22, ISTAID 8, STAID 16, TSTYPE 6, TCODE 6, TSSTEP 6
INSTRUCT
Enter a command by typing first letter of name or
move highlight to desired command with left or right arrow,
then <carriage return>
Help:F1 Accept:F2 Prev:F4 Status:F7 Intrpt:F6 Quiet:F8 Xpad:F9 Cmhlp



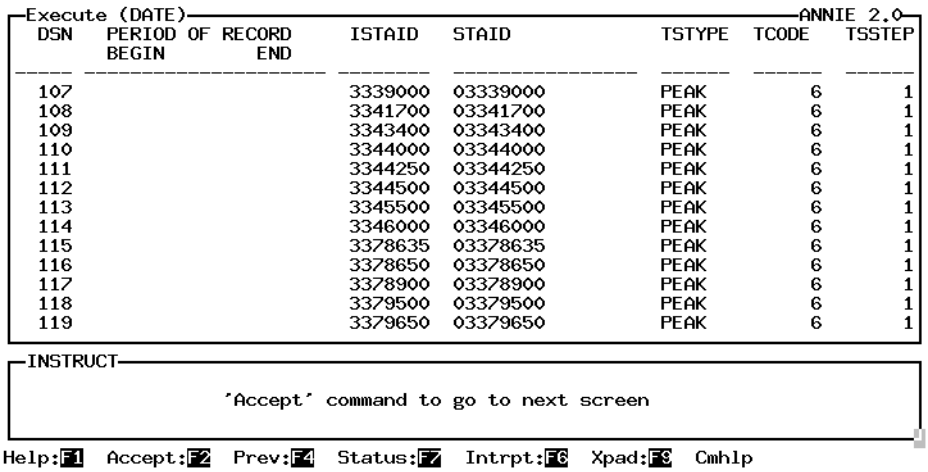
Execute (DATE) ANNIE 2.0

DSN	PERIOD OF RECORD BEGIN	END	ISTAID	STAID	TSTYPE	TCODE	TSSTEP
5	1956/1/1	1957/12/31		365205084265702	PREC	4	1
6	1956/1/1	1957/12/31	3407100	03407100	FLOW	4	1
7	1956/1/1	1957/12/31		365200085090000	EVAP	4	1
8	1956/1/1	1957/12/31		370700084370000	TEMP	4	1
9	1956/1/1	1957/12/31		370700084370000	TEMP	4	1
10	1956/2/17	1957/4/8		365205084265702	PREC	2	15
11	1956/2/2	1957/4/8	3407100	03407100	FLOW	2	15
101			3336100	03336100	PEAK	6	1
102			3336500	03336500	PEAK	6	1
103			3336900	03336900	PEAK	6	1
104			3338000	03338000	PEAK	6	1
105			3338100	03338100	PEAK	6	1
106			3338500	03338500	PEAK	6	1

INSTRUCT

'Accept' command to go to next screen

Help:F1 Accept:F2 Prev:F4 Status:F7 Intrpt:F6 Xpad:F9 Cmhlp



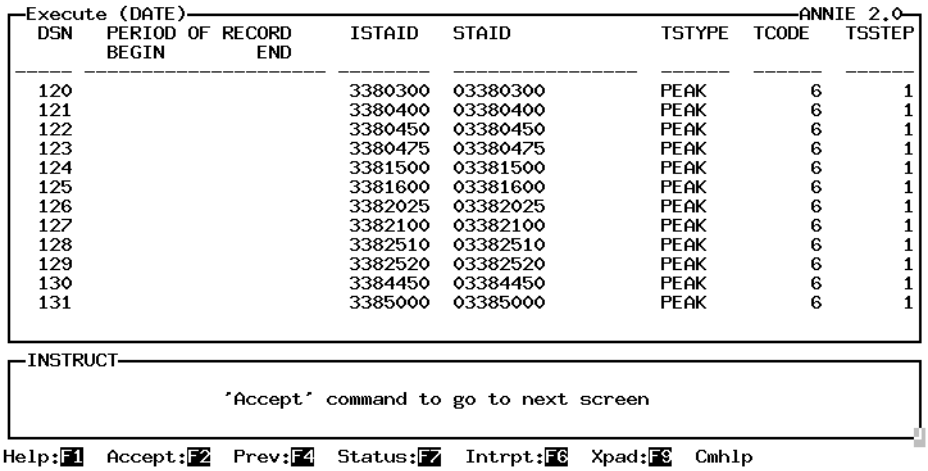
Execute (DATE) ANNIE 2.0

DSN	PERIOD OF RECORD BEGIN	END	ISTAID	STAID	TSTYPE	TCODE	TSSTEP
107			3339000	03339000	PEAK	6	1
108			3341700	03341700	PEAK	6	1
109			3343400	03343400	PEAK	6	1
110			3344000	03344000	PEAK	6	1
111			3344250	03344250	PEAK	6	1
112			3344500	03344500	PEAK	6	1
113			3345500	03345500	PEAK	6	1
114			3346000	03346000	PEAK	6	1
115			3378635	03378635	PEAK	6	1
116			3378650	03378650	PEAK	6	1
117			3378900	03378900	PEAK	6	1
118			3379500	03379500	PEAK	6	1
119			3379650	03379650	PEAK	6	1

INSTRUCT

'Accept' command to go to next screen

Help:F1 Accept:F2 Prev:F4 Status:F7 Intrpt:F6 Xpad:F9 Cmhlp



Execute (DATE) ANNIE 2.0

DSN	PERIOD OF RECORD BEGIN	END	ISTAID	STAID	TSTYPE	TCODE	TSSTEP
120			3380300	03380300	PEAK	6	1
121			3380400	03380400	PEAK	6	1
122			3380450	03380450	PEAK	6	1
123			3380475	03380475	PEAK	6	1
124			3381500	03381500	PEAK	6	1
125			3381600	03381600	PEAK	6	1
126			3382025	03382025	PEAK	6	1
127			3382100	03382100	PEAK	6	1
128			3382510	03382510	PEAK	6	1
129			3382520	03382520	PEAK	6	1
130			3384450	03384450	PEAK	6	1
131			3385000	03385000	PEAK	6	1

INSTRUCT

'Accept' command to go to next screen

Help:F1 Accept:F2 Prev:F4 Status:F7 Intrpt:F6 Xpad:F9 Cmhlp

Listing of file attrib.tbl:

DSN	PERIOD OF RECORD BEGIN	END	ISTAID	STAID	TSTYPE	TCODE	TSSTEP
5	1956/1/1	1957/12/31		365205084265702	PREC	4	1
6	1956/1/1	1957/12/31	3407100	03407100	FLOW	4	1
7	1956/1/1	1957/12/31		365200085090000	EVAP	4	1
8	1956/1/1	1957/12/31		370700084370000	TEMP	4	1
9	1956/1/1	1957/12/31		370700084370000	TEMP	4	1
10	1956/2/17	1957/4/8		365205084265702	PREC	2	15
11	1956/2/2	1957/4/8	3407100	03407100	FLOW	2	15
101			3336100	03336100	PEAK	6	1
102			3336500	03336500	PEAK	6	1
103			3336900	03336900	PEAK	6	1
104			3338000	03338000	PEAK	6	1
105			3338100	03338100	PEAK	6	1
106			3338500	03338500	PEAK	6	1
107			3339000	03339000	PEAK	6	1
108			3341700	03341700	PEAK	6	1
109			3343400	03343400	PEAK	6	1
110			3344000	03344000	PEAK	6	1
111			3344250	03344250	PEAK	6	1
112			3344500	03344500	PEAK	6	1
113			3345500	03345500	PEAK	6	1
114			3346000	03346000	PEAK	6	1
115			3378635	03378635	PEAK	6	1
116			3378650	03378650	PEAK	6	1
117			3378900	03378900	PEAK	6	1
118			3379500	03379500	PEAK	6	1
119			3379650	03379650	PEAK	6	1
120			3380300	03380300	PEAK	6	1
121			3380400	03380400	PEAK	6	1
122			3380450	03380450	PEAK	6	1
123			3380475	03380475	PEAK	6	1
124			3381500	03381500	PEAK	6	1
125			3381600	03381600	PEAK	6	1
126			3382025	03382025	PEAK	6	1
127			3382100	03382100	PEAK	6	1
128			3382510	03382510	PEAK	6	1
129			3382520	03382520	PEAK	6	1
130			3384450	03384450	PEAK	6	1
131			3385000	03385000	PEAK	6	1

DATA BUILD

The BUILD option is used to create a new data set and to enter the minimum of required attributes. The attributes entered will depend on the type of data set being created. If a new data set has many of the same attribute values as an existing data set, the attributes of an existing data set can be used to make the new data set, the Modify and Delete options under DATA/ATTRIBUTE can be used to customize the data set. If the new data set is not similar to an existing data set, you must enter values for the required attributes. See the section on SPECIAL TIME-SERIES ATTRIBUTES for details on these attributes.

1 Enter a unique data-set number for the new data.

A. If an existing data set will be used as a template for the new data set, enter YES and the number of the existing data set.

B. If an existing data set will not be used as a template for the new data set, enter NO and leave the second data-set number field 0.

2 (if not using a template) Enter the type for the new data set. The default is TImeseries.

3 (if not using a template) Enter the data set space allocation parameters. Note: This screen will not be displayed if a TERM.DAT file contains USRLEV set to 0 or 1.

Down (NDN) and up (NUP) pointers - not really used, generally 1.

Search attributes (NSA) - the maximum number of attributes that you expect to have in the data set. Note: This includes required attributes, such as TCODE, TSSTEP, TGROUP, and COMPFG.

Search attribute space (NSP) - the space allocated for the attributes. This is slightly larger than the number of attributes because character attributes require a space for every four characters of the value of the attribute. For example, STANAM may be up to 48 characters, so it requires 12 spaces (even if you only use 10 characters).

Data pointers (NDP) - number of data group pointers. This combined with TGROUP and TSBYR will determine the period of record that can be stored in the data set.

A good rule of thumb for space allocation is

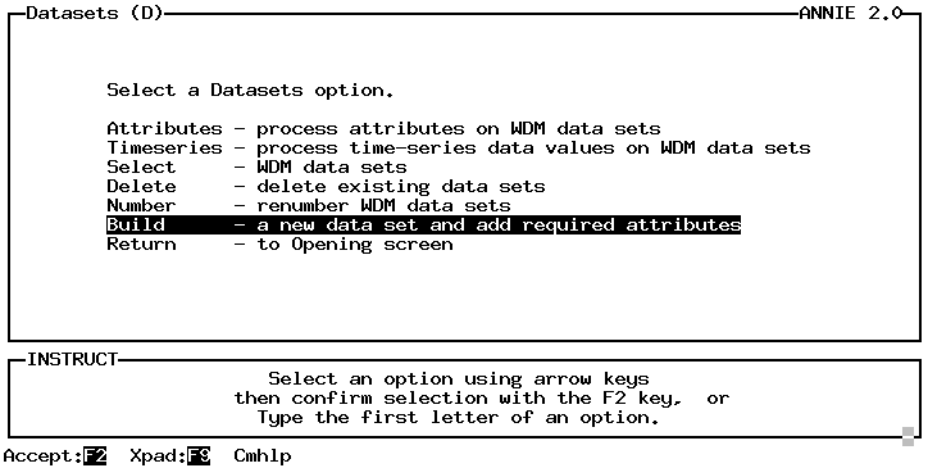
2*NSA + NSP + NDP + NUP + NDN <= 475

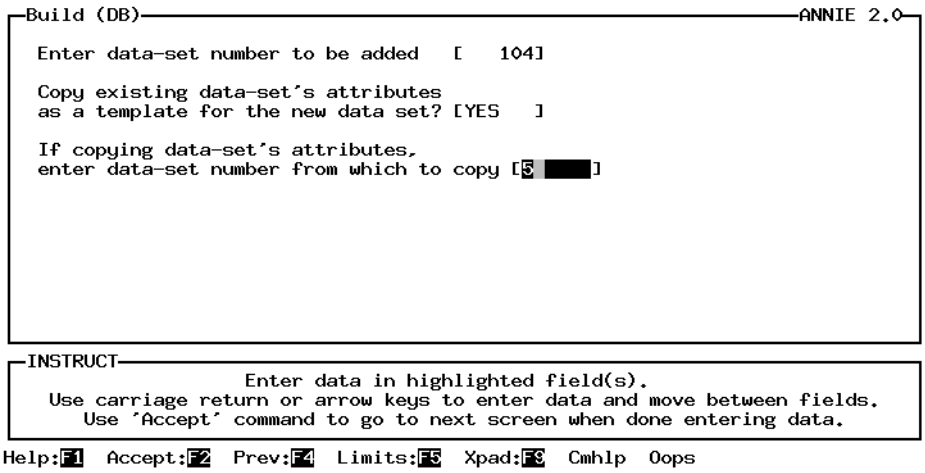
4 (if not using a template) Enter the general description attributes for the data set.

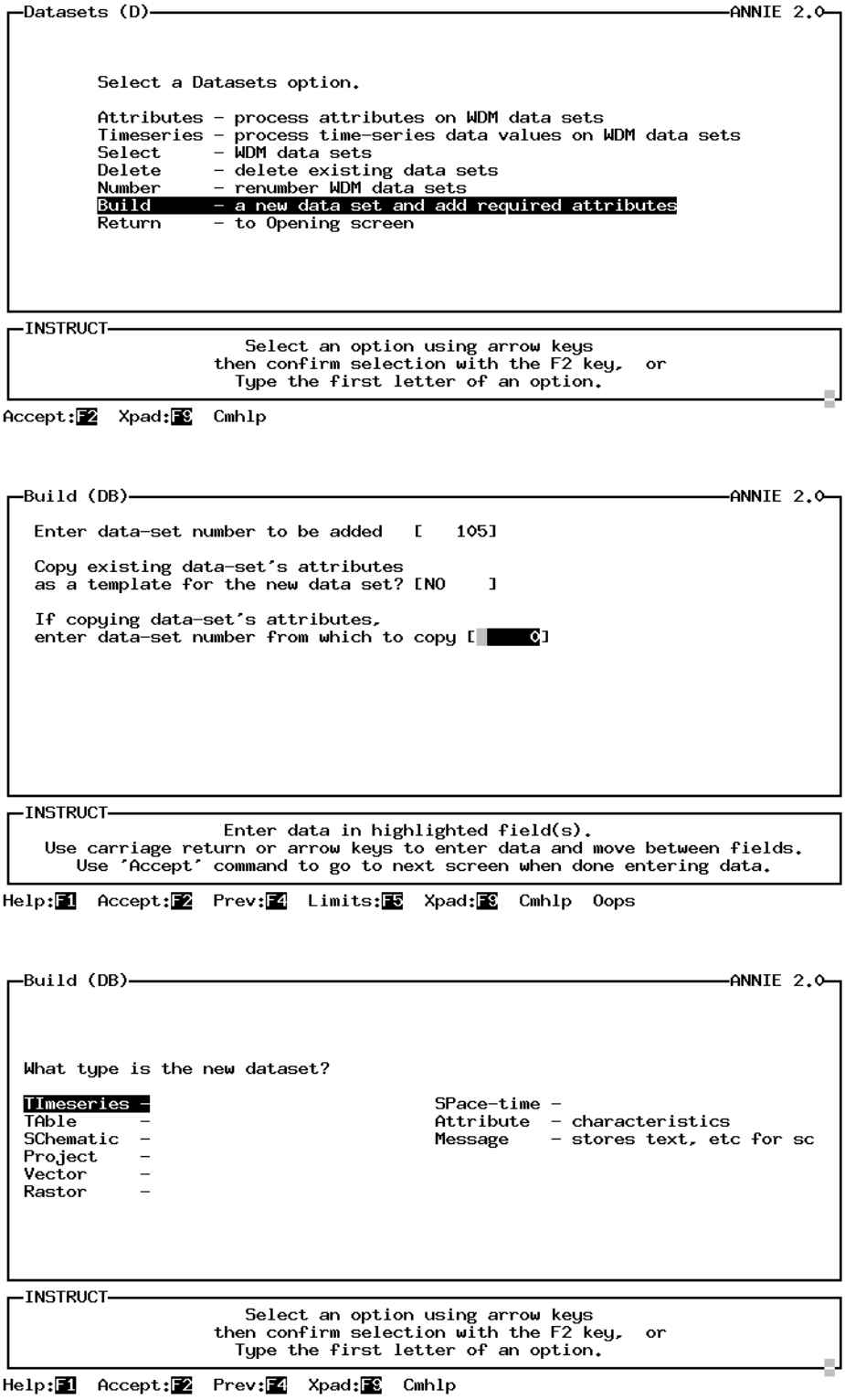
5 (Time series, if not using a template) Enter the time step and storage specific attributes.

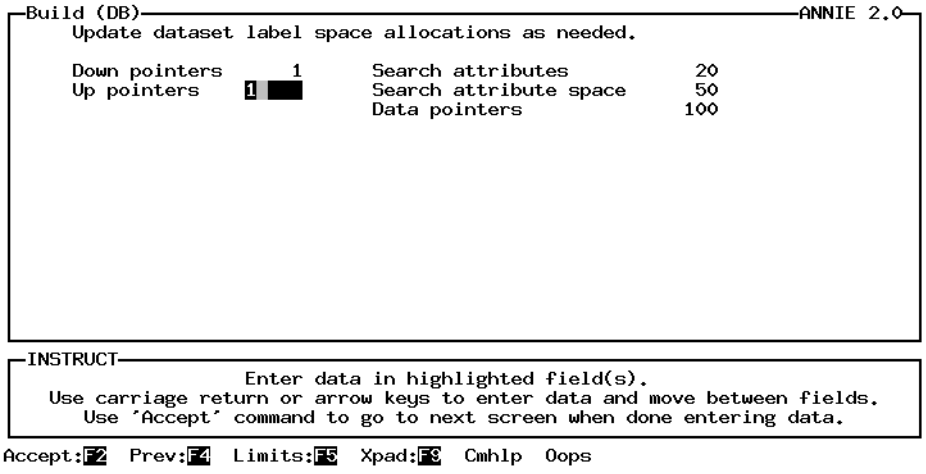
In the example, two data sets were added to the WDM file. The first data set, number 104, was added using the same attributes as data-set number 5. For the second data set, number 105, the required attributes were entered. Note that no time-series data have actually been entered into the data sets at this point. Note also that the number of data pointers is left at the default, 100, and the base year was changed to 1890. Thus, data

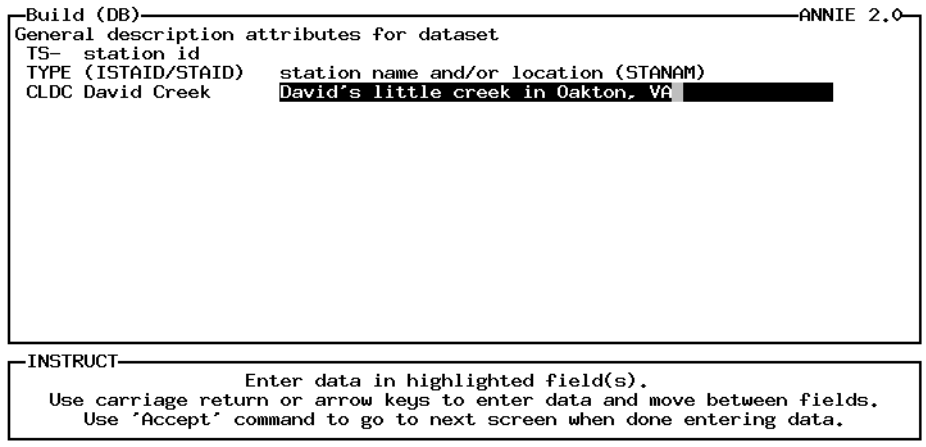
can only be entered up to 1990. The number of data pointers should be increased to 110 if data through 1999 is to be stored. See the ATTRIBUTES/Modify option for an example of the addition of optional attributes.

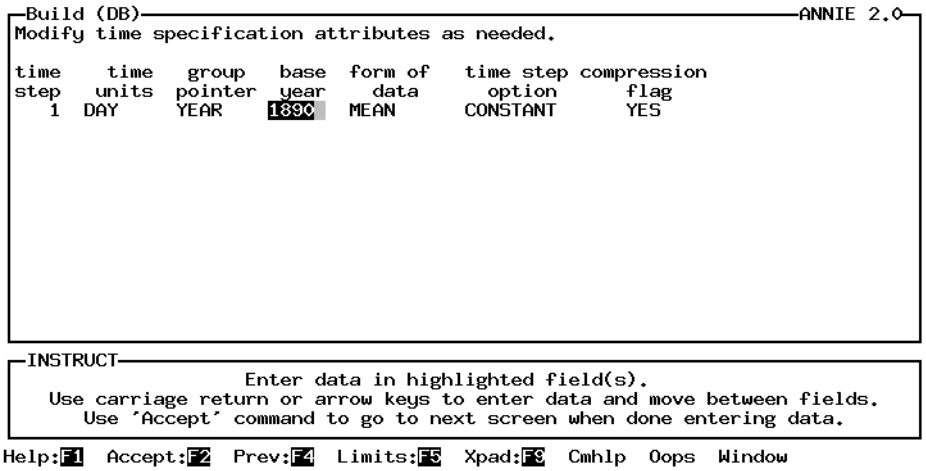





Datasets (D)
ANNIE 2.0
Select a Datasets option.
Attributes - process attributes on WDM data sets
Timeseries - process time-series data values on WDM data sets
Select - WDM data sets
Delete - delete existing data sets
Number - renumber WDM data sets
Build - a new data set and add required attributes
Return - to Opening screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Xpad:F9 Cmhlp
Build (DB)
ANNIE 2.0
Enter data-set number to be added [105]
Copy existing data-set's attributes
as a template for the new data set? [NO]
If copying data-set's attributes,
enter data-set number from which to copy [0]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops
Build (DB)
ANNIE 2.0
What type is the new dataset?
TImeseries -
TAble -
SChematic -
Project -
Vector -
Rastor -
SPace-time -
Attribute - characteristics
Message - stores text, etc for sc
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Prev:F4 Xpad:F9 Cmhlp


Build (DB)
ANNIE 2.0
Update dataset label space allocations as needed.
Down pointers 1
Up pointers 1
Search attributes 20
Search attribute space 50
Data pointers 100
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops


Build (DB)
ANNIE 2.0
General description attributes for dataset
TS- station id
TYPE (ISTAID/STAID) station name and/or location (STANAM)
CLDC David Creek David's little creek in Oakton, VA
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops Window


Build (DB)
ANNIE 2.0
Modify time specification attributes as needed.
time step
time units
group pointer
base year
form of data
time step compression option
flag
1 DAY YEAR 1890 MEAN CONSTANT YES
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops Window

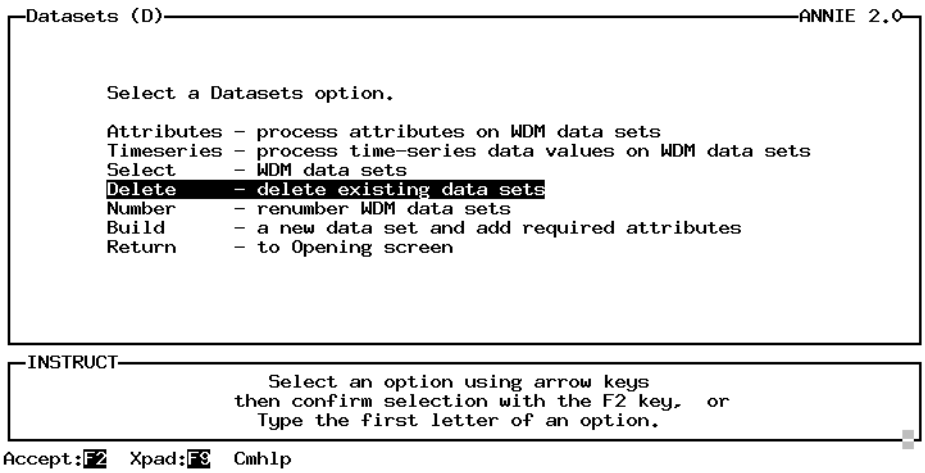
DATA DELETE

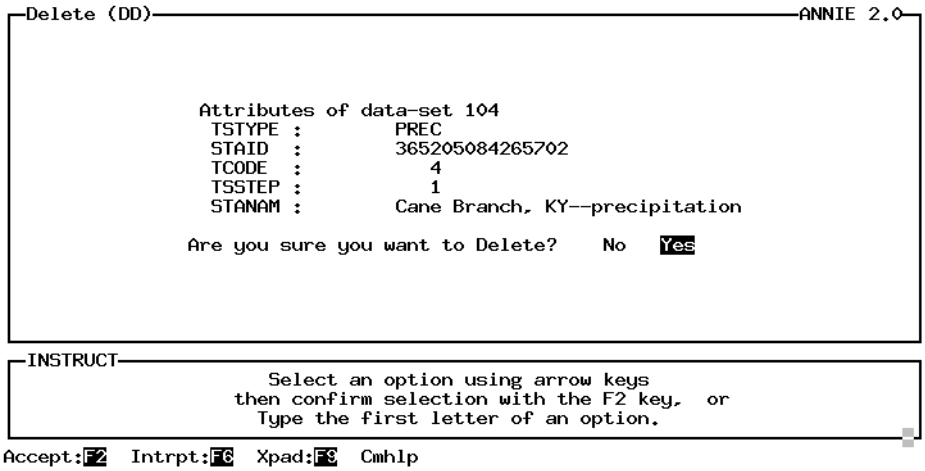
The DELETE option is used to delete one or more data sets from the WDM file. Once a data set has been deleted, it cannot be recovered! Deleting data sets will not make the WDM file physically smaller. However, the space that had been occupied by the deleted data sets will be reused as new data are added to the WDM file.

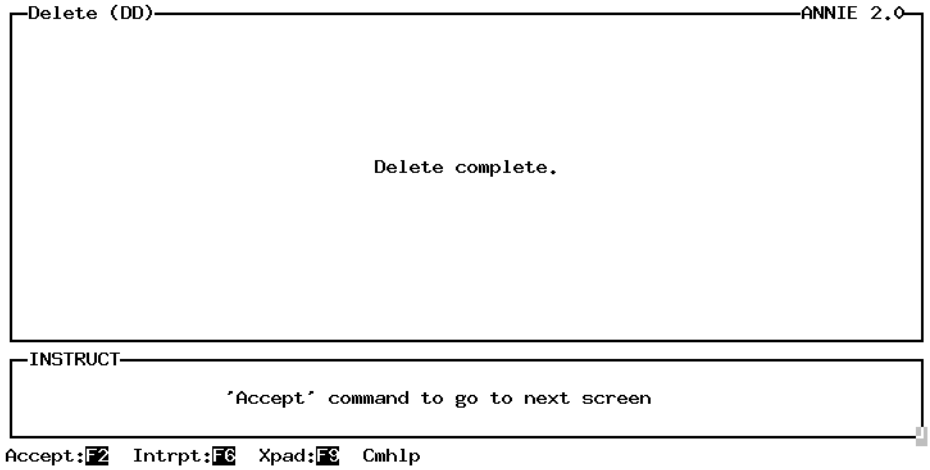
0 The DELETE option requires that the data-set buffer contain the numbers of the data sets that will be deleted. The data-set buffer cannot be populated under DELETE; use SELECT to identify the data sets before choosing DELETE.

1 For each data set identified in the data-set buffer, a screen containing several descriptive attributes of the data set will be displayed. Select Yes if the data set should be deleted or No if the data set should not be deleted.

In the example, one data set is identified in the data-set buffer, 104. The DELETE screen shows that data-set 104 contains daily precipitation data for Cane Branch in Kentucky. Yes was entered for the question "Are you sure you want to Delete?", and the data set was deleted from the WDM file.






Delete (DD)
ANNIE 2.0
Delete complete.
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Intrpt:F6 Xpad:F8 Cmhlp

DATA NUMBER

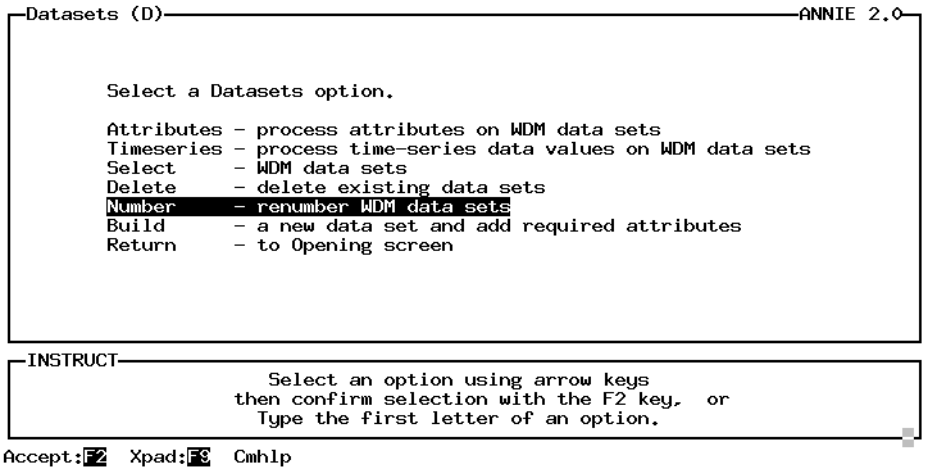
The NUMBER option is used to renumber data sets in a WDM file. The data sets are not actually "moved around" in the file, but rather the pointers are modified to reflect the changed data-set numbers. A single data set may be renumbered or a range and increment of data-set numbers may be renumbered to a new range and increment of data-set numbers. There may be any number of reasons for renumbering data sets, the most common being to numerically order the data sets in a manner that fits some requirements of the user. NUMBER might be used after a TIME-SERIES/Copy operation to renumber the new data set to the number of the original data set (after first renumbering or deleting the original data set). Once a data set has been renumbered, it cannot be found using the original data-set number.

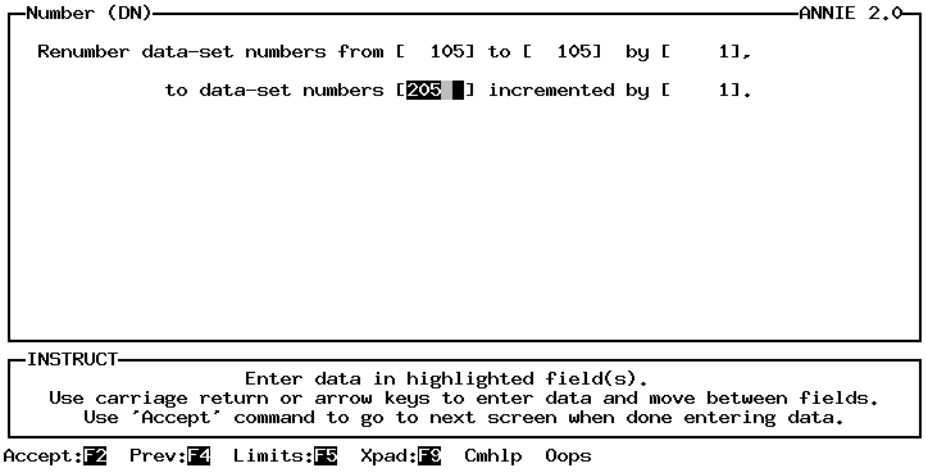
1 Identify the data-set numbers.

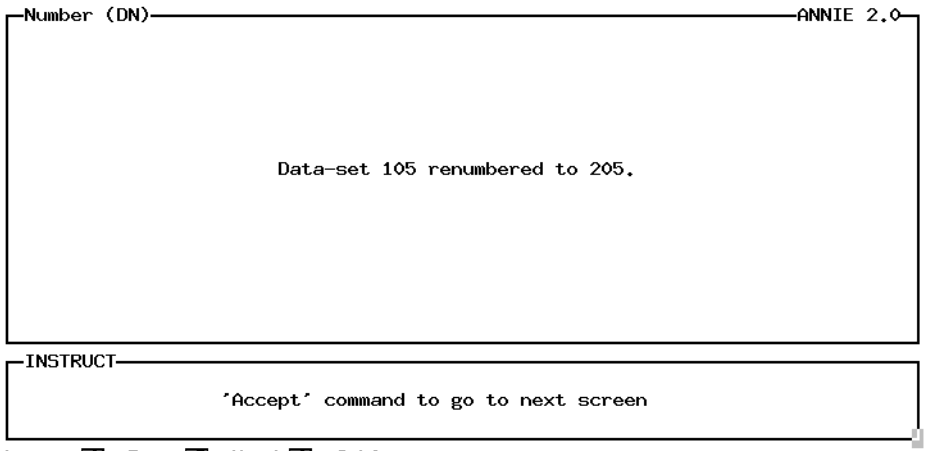
A. Enter the original data-set number or range of data-set numbers. For one data set, enter the same number twice. Enter the increment between data-set numbers.

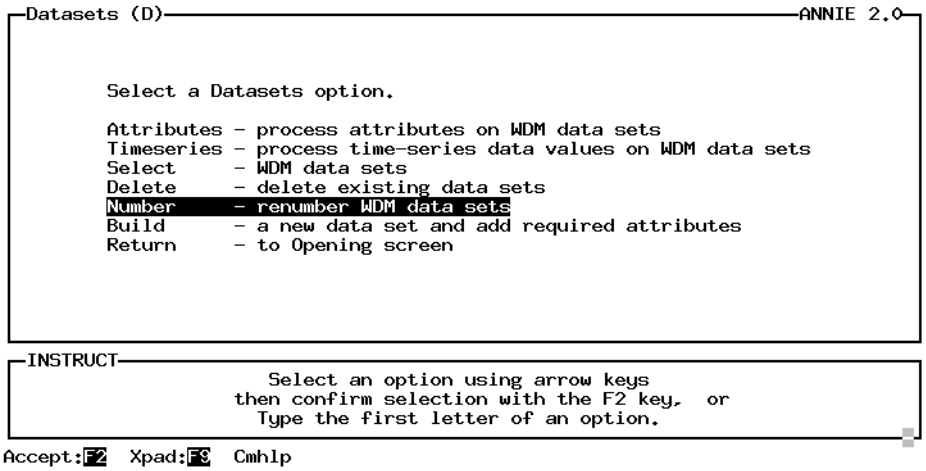
B. Enter the new starting data-set number and the increment to be used between the new data-set numbers.

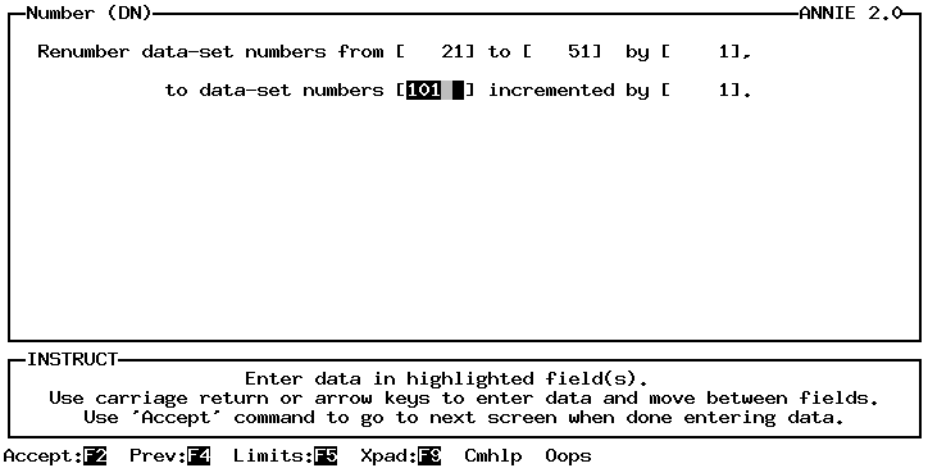
There are two examples. The first example is a simple renumber of data-set number 105 to data-set number 205. The second example is a renumber of the range of data-set numbers 21 through 51, all data sets are included because the increment is 1. The new data-set numbers start at 101 and are incremented by 1 to the ending data-set number 131. The screens for the renumbered data-sets 103 through 130 are not included in the example.

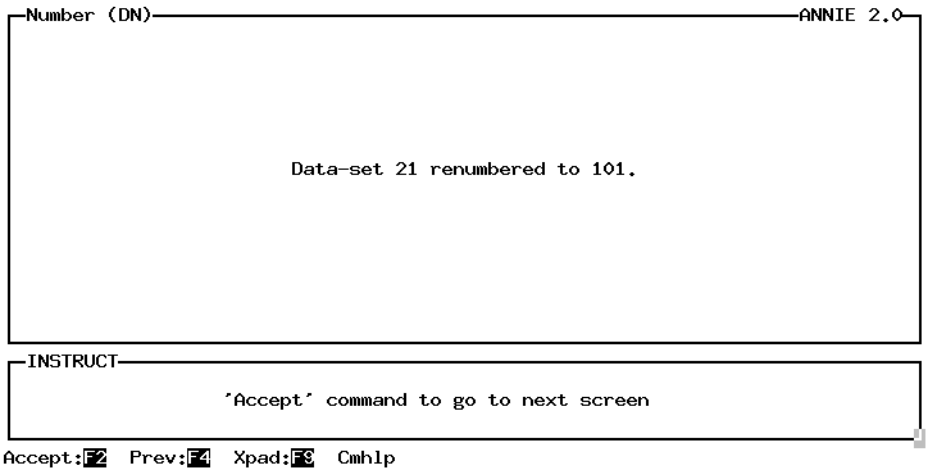


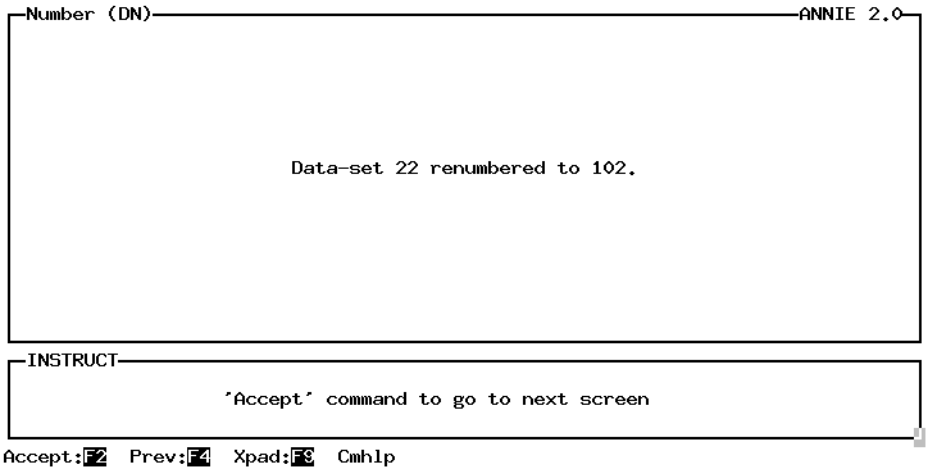

Number (DN)
ANNIE 2.0
Renumber data-set numbers from [105] to [105] by [1],
to data-set numbers [205] incremented by [1].
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Accept:F2 Prev:F4 Limits:F5 Xpad:F8 Cmhlp Oops


Number (DN)
ANNIE 2.0
Data-set 105 renumbered to 205.
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Prev:F4 Xpad:F8 Cmhlp

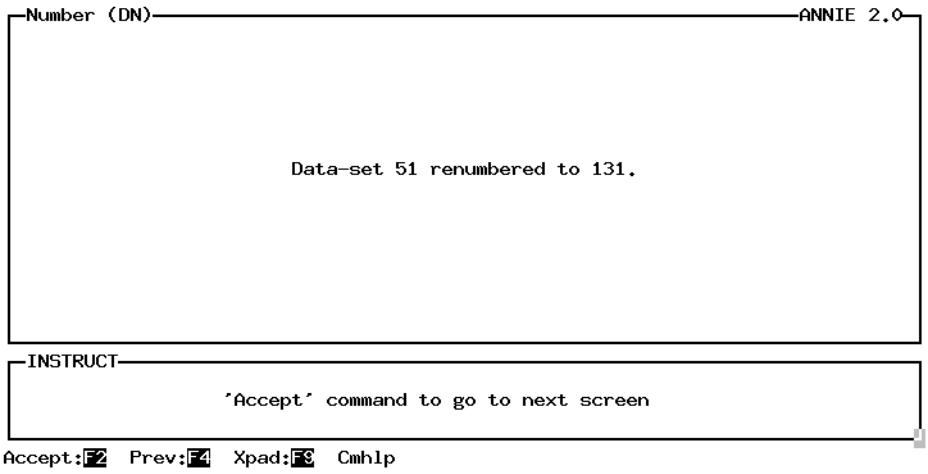

Datasets (D)
ANNIE 2.0
Select a Datasets option.
Attributes - process attributes on WDM data sets
Timeseries - process time-series data values on WDM data sets
Select - WDM data sets
Delete - delete existing data sets
Number - renumber WDM data sets
Build - a new data set and add required attributes
Return - to Opening screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Xpad:F8 Cmhlp


Number (DN)
ANNIE 2.0
Renumber data-set numbers from [21] to [51] by [1],
to data-set numbers [101] incremented by [1].
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Accept:F2 Prev:F4 Limits:F5 Xpad:F8 Cmhlp Oops


Number (DN)
ANNIE 2.0
Data-set 21 renumbered to 101.
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Prev:F4 Xpad:F8 Cmhlp


Number (DN)
ANNIE 2.0
Data-set 22 renumbered to 102.
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Prev:F4 Xpad:F8 Cmhlp

Screens for renumbered data-sets 103 through 130 are not shown.



DATA SELECT

The SELECT option is available from the DATA menu. SELECT is used to populate the data-set buffer. The data-set buffer must be populated before the DATA/DELETE option is chosen. The data-set buffer may be populated before the DATA/ ATTRIBUTES and DATA/TIME-SERIES options are chosen, but it is not required. The DATA/BUILD and DATA/NUMBER options do not use the data-set buffer. See the SELECT section for details of populating the data-set buffer.

DATA TIME SERIES ADD

The Add option is used to manually add time-series data to an existing WDM data set using the keyboard. Data may be added to the end of the data set. Time-series data may not be inserted at the beginning or in the middle of the existing time series. The new time-series data may not replace existing data. To modify existing time-series data, see the TIME-SERIES/Modify and TIME-SERIES/Copy options.

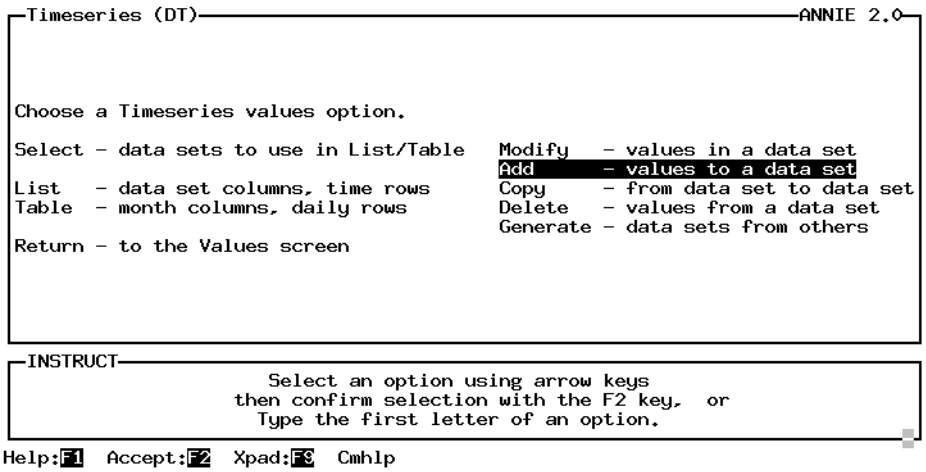
1. Enter the data-set number.

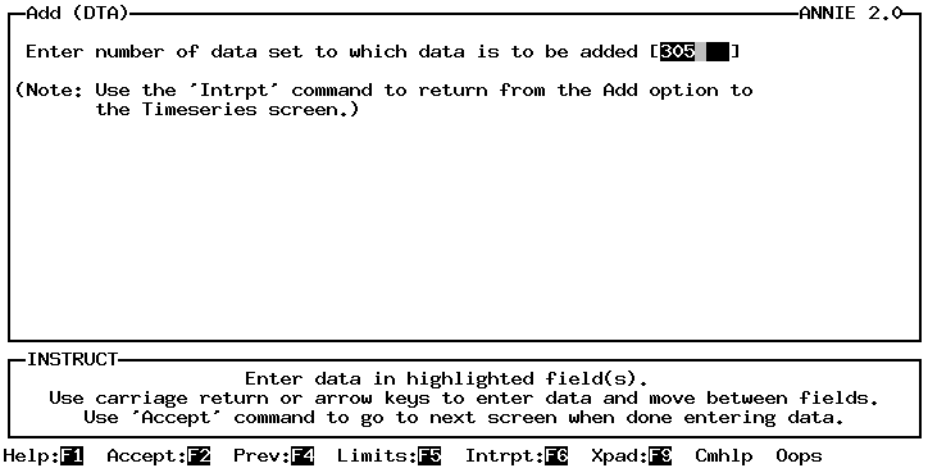
2. Specify the date to begin adding data, the number of values to be added, the quality code for the new data, and the time step and units of the new data. By default, the new data will begin one time step past the last data value in the data set, the time step will be the time step of the data set, and the quality code will be 0. Up to 366 data values may be entered at a time.

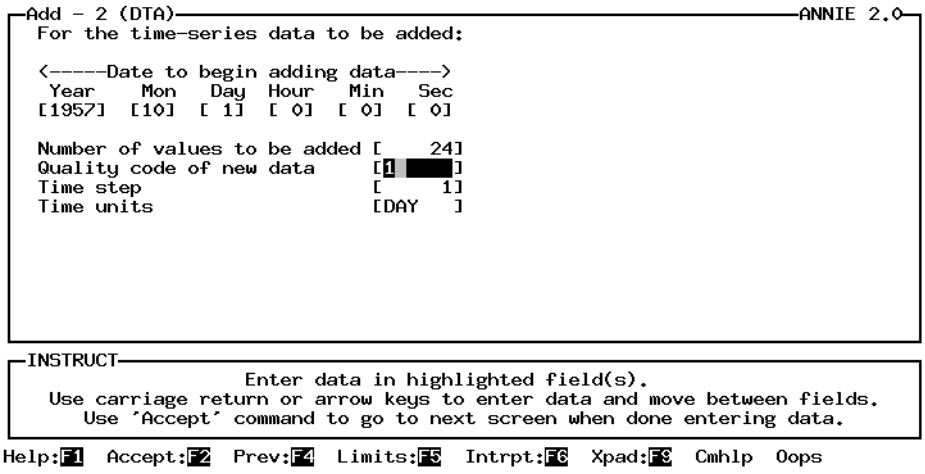
3. Enter the new data values. After all of the values have been entered, verify that the data should be added to the data set (Yes) or go back to the data values and make changes (No).

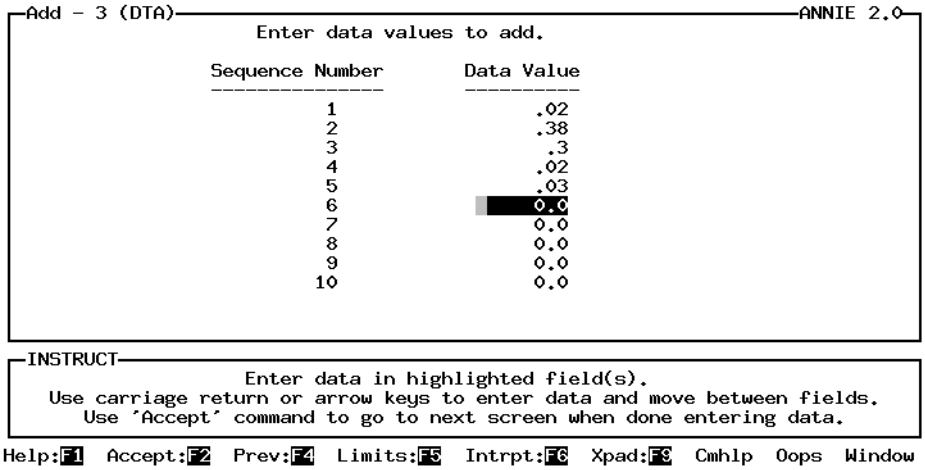
4. Repeat steps 1, 2, and 3 until all of the desired data have been added for all desired data sets. Then execute Intrpt (F6) to return to the TIME-SERIES menu.

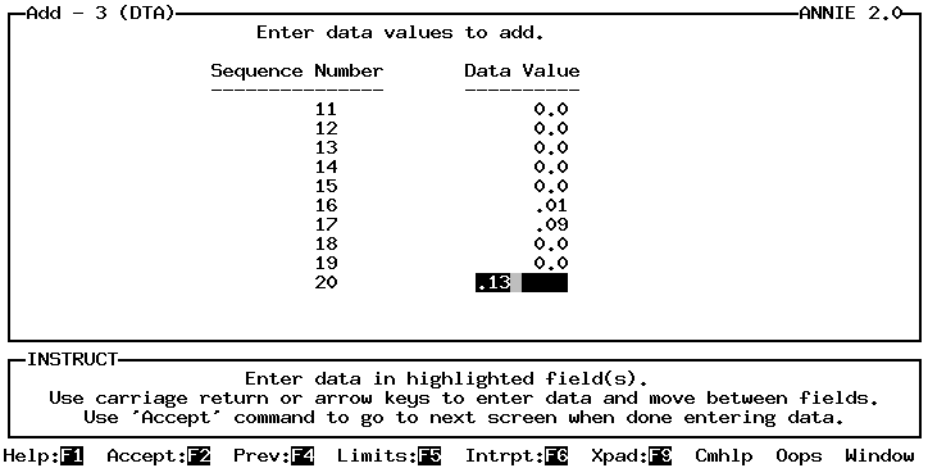
In the example, 24 daily values are added to the end of data-set 305, beginning October 1, 1957. The time step of the data is 1 day. The quality code for the data is 1.

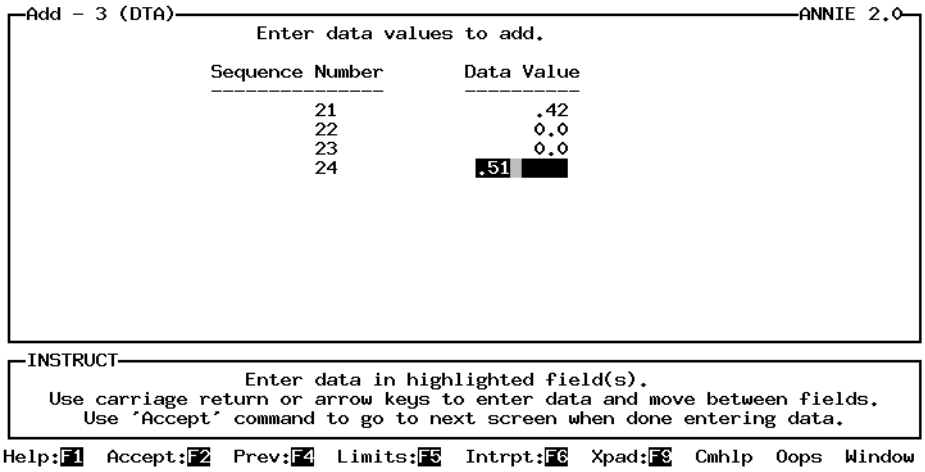


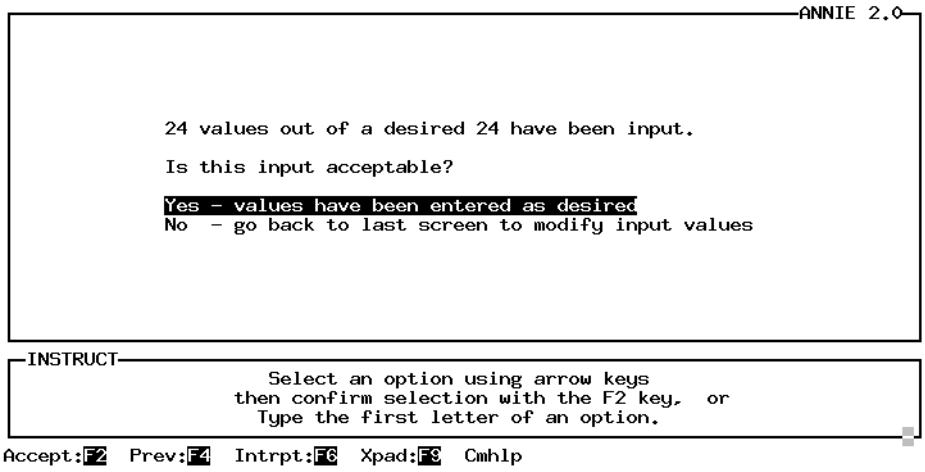

Add (DTA)
ANNIE 2.0
Enter number of data set to which data is to be added [305]
(Note: Use the 'Intrpt' command to return from the Add option to
the Timeseries screen.)
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops

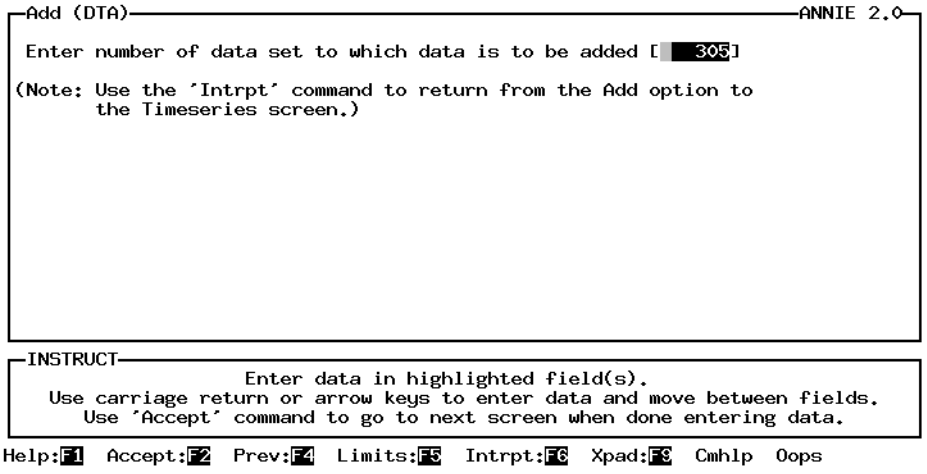

Add - 2 (DTA)
ANNIE 2.0
For the time-series data to be added:
<-----Date to begin adding data---->
Year Mon Day Hour Min Sec
[1957] [10] [1] [0] [0] [0]
Number of values to be added [24]
Quality code of new data [1]
Time step [1]
Time units [DAY]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops

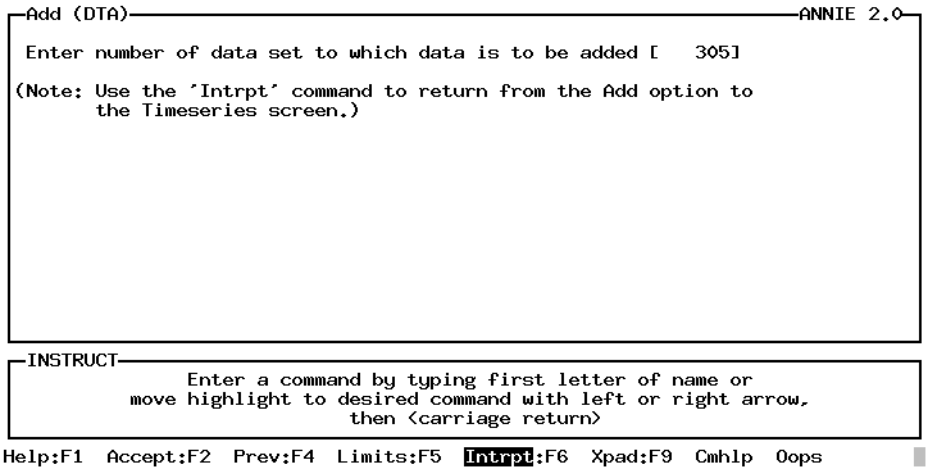

Add - 3 (DTA)
ANNIE 2.0
Enter data values to add.
Sequence Number
Data Value
1 .02
2 .38
3 .3
4 .02
5 .03
6 0.0
7 0.0
8 0.0
9 0.0
10 0.0
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops Window


Add - 3 (DTA)
ANNIE 2.0
Enter data values to add.
Sequence Number
Data Value
11 0.0
12 0.0
13 0.0
14 0.0
15 0.0
16 .01
17 .09
18 0.0
19 0.0
20 .13
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops Window


Add - 3 (DTA)
ANNIE 2.0
Enter data values to add.
Sequence Number
Data Value
21 .42
22 0.0
23 0.0
24 .51
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops Window


ANNIE 2.0
24 values out of a desired 24 have been input.
Is this input acceptable?
Yes - values have been entered as desired
No - go back to last screen to modify input values
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Prev:F4 Intrpt:F6 Xpad:F9 Cmhlp


Add (DTA)
ANNIE 2.0
Enter number of data set to which data is to be added [305]
(Note: Use the 'Intrpt' command to return from the Add option to
the Timeseries screen.)
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops


Add (DTA)
ANNIE 2.0
Enter number of data set to which data is to be added [305]
(Note: Use the 'Intrpt' command to return from the Add option to
the Timeseries screen.)
INSTRUCT
Enter a command by typing first letter of name or
move highlight to desired command with left or right arrow,
then <carriage return>
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops

DATA TIME SERIES COPY

The Copy option is used to make a copy of an already existing data set. Beginning and ending dates may be specified to copy all or part of the time-series data. As part of the Copy operation, the time-series data may be updated using data values entered from either a file or from the terminal. Data values entered from the terminal are saved to a file that can be checked later to verify that the correct data were entered. The time-series data may be copied to a new data set, in which case the attributes from the original data set also are copied to the new data set. The time-series data may be copied to an existing data set, in which case the attributes TCODE, TSSTEP, TGROUP, TSFORM, COMPFG, and VBTIME for both data sets must agree. If these attributes do not agree, see the Generate option for an alternative method of copying data.

The Copy operation is commonly used to retain a copy of the raw data as well as the corrected data. The Copy operation is the only way to update time-series data that have been stored with data compression (COMPFG = 1). The DATA/NUMBER option may be used to renumber data sets.

The format for the update file is:

Column	Item
1-6	year
7-9	month
10-12	day
13-15	hour
16-18	minute
19-21	second
22-27	time step in time units units
28-34	time units (1-sec, 2-min, 3-hr, 4-day, 5-mo, 6-yr)
35-45	value (decimal number)
46-52	quality flag (0-30)

1 Specify the source and target Data sets. If the target data set does not exist, verify that the new attributes from the source data set should be copied to the target data set. An alternative is to create the target data set before trying to copy the data; see DATA/BUILD option.

2 (Optional) Identify the Period of record to be copied. By default, the entire period of record will be copied.

3 (Optional) Identify any Updates that should be made to the time-series data during the Copy operation. By default, no updates are made.

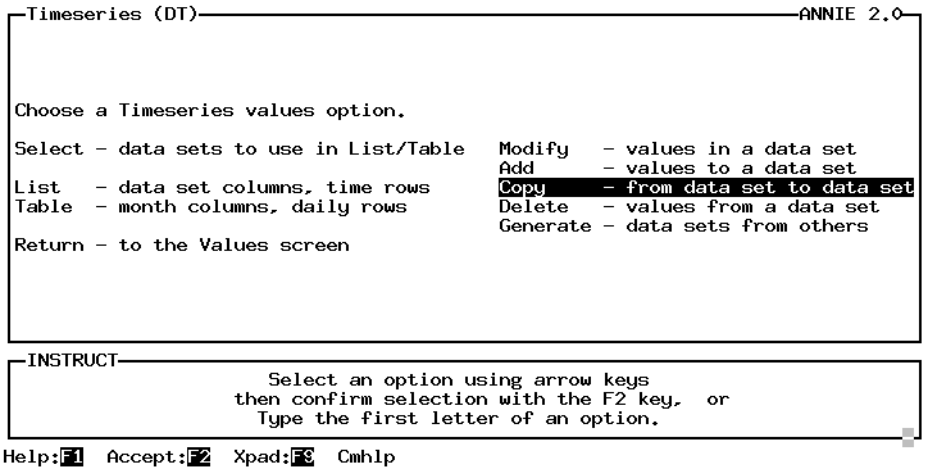
A. Specify if the updates will come from an existing File or will be manually entered from the Terminal.

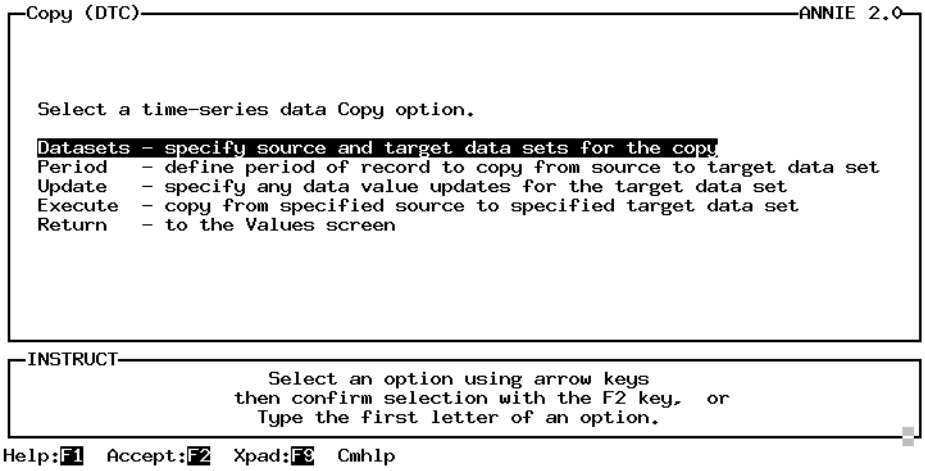
B. Enter either the name of the existing update File or the name of a new file that will contain the updates entered from the Terminal.

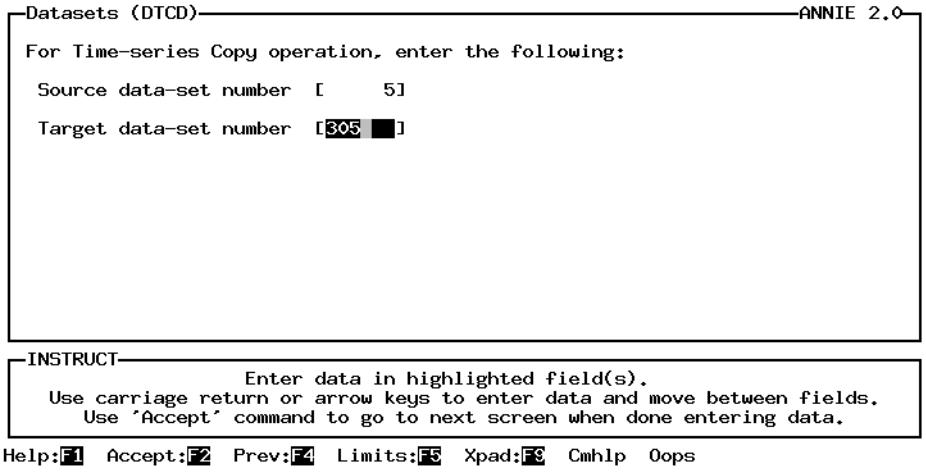
C. If the updated time-series data are to be entered from the terminal, enter the values. Include the time-series data value, the quality code for the data value, the date and time at the start of the time step, and the time step and units. After each time step is entered, the date and time will be incremented one time step. Enter a 0 for the start year to exit the data input.

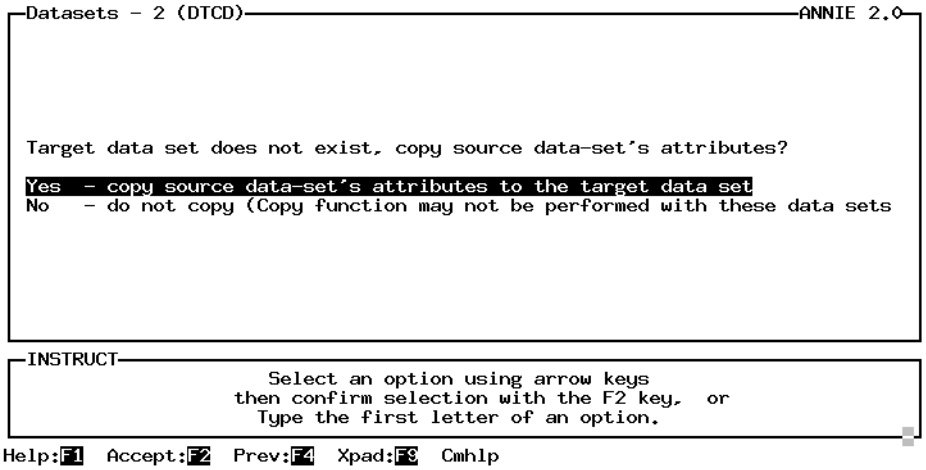
4 Select Execute to make the copy and update.

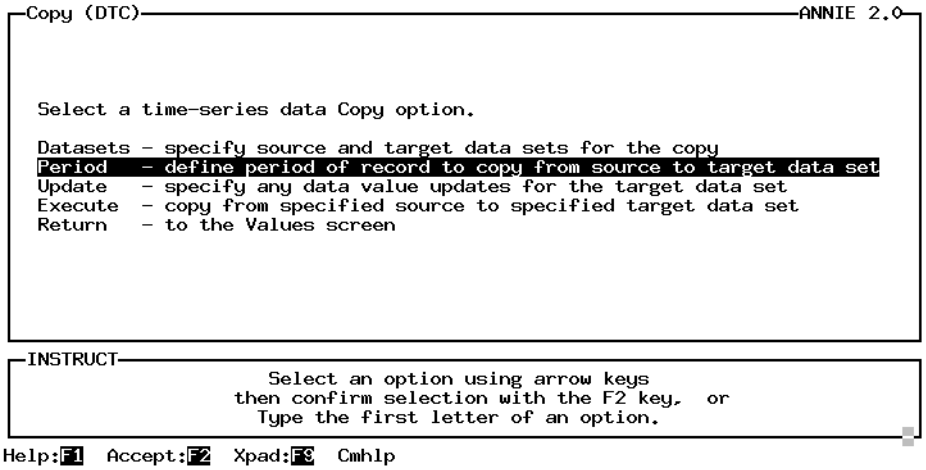
In the example, the time-series data are copied from data-set 5 to data-set 305. Data-set 305 did not exist, so the attributes from data-set 5 were copied along with the time-series data to the new data-set 305. Data for the entire available period of record were copied. Updates were entered from the terminal and saved in the file update.out. Four time steps were updated. The Copy was Executed successfully. The contents of file update.out are listed after the example.

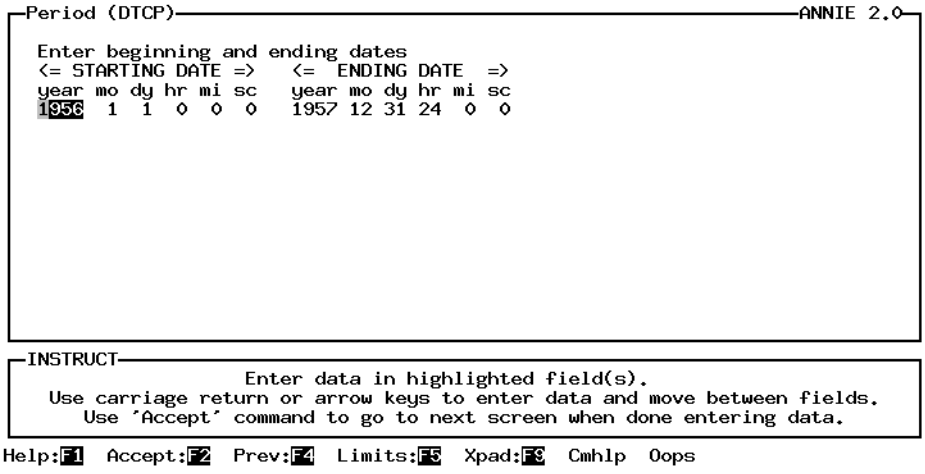


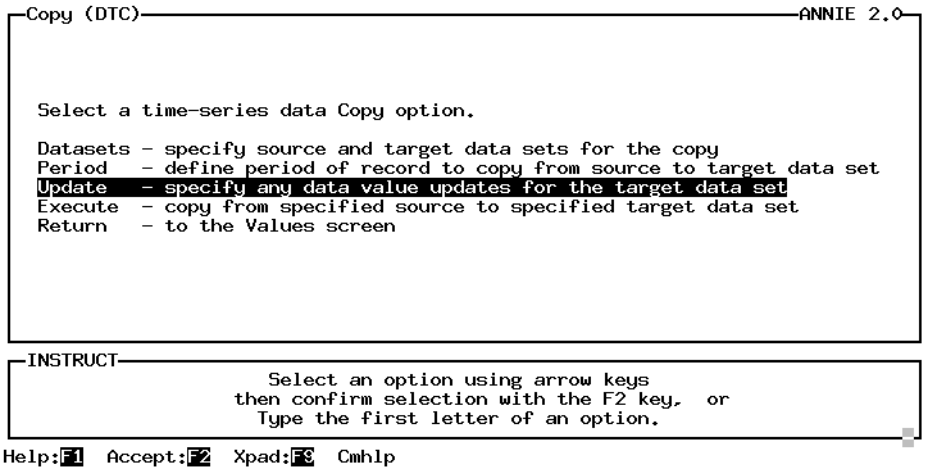


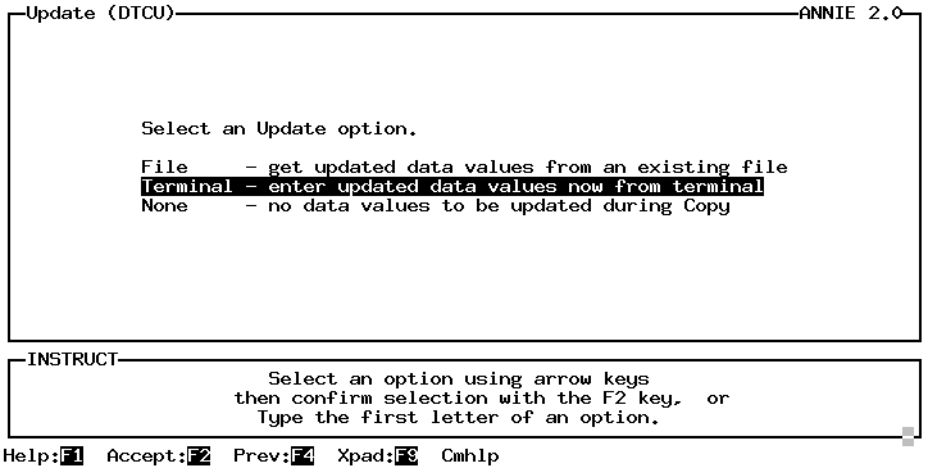

Datasets (DTCD) ANNIE 2.0
For Time-series Copy operation, enter the following:
Source data-set number [5]
Target data-set number [305]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops

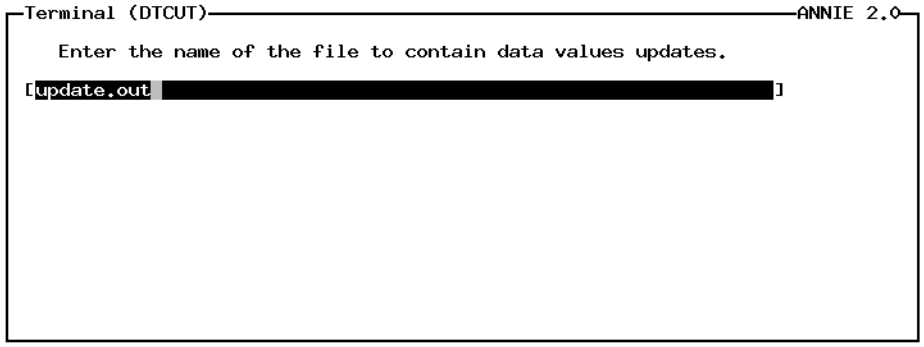

Datasets - 2 (DTCD) ANNIE 2.0
Target data set does not exist, copy source data-set's attributes?
Yes - copy source data-set's attributes to the target data set
No - do not copy (Copy function may not be performed with these data sets
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Prev:F4 Xpad:F9 Cmhlp

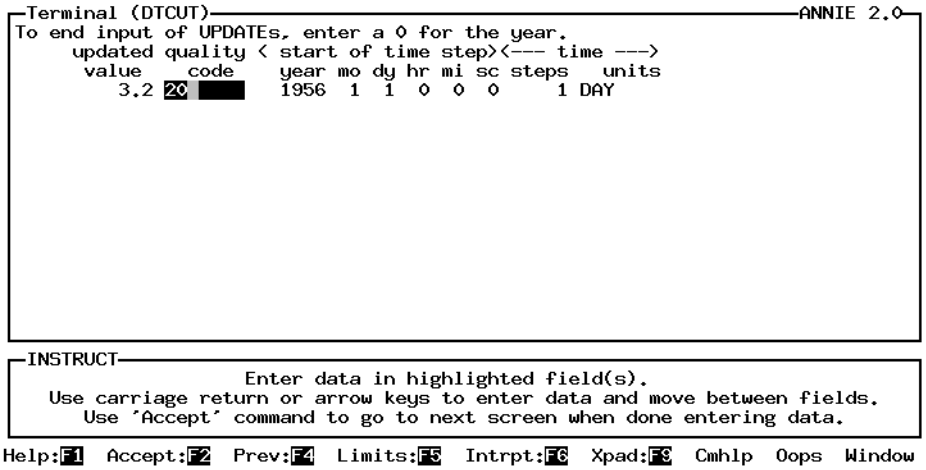

Copy (DTC) ANNIE 2.0
Select a time-series data Copy option.
Datasets - specify source and target data sets for the copy
Period - define period of record to copy from source to target data set
Update - specify any data value updates for the target data set
Execute - copy from specified source to specified target data set
Return - to the Values screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp

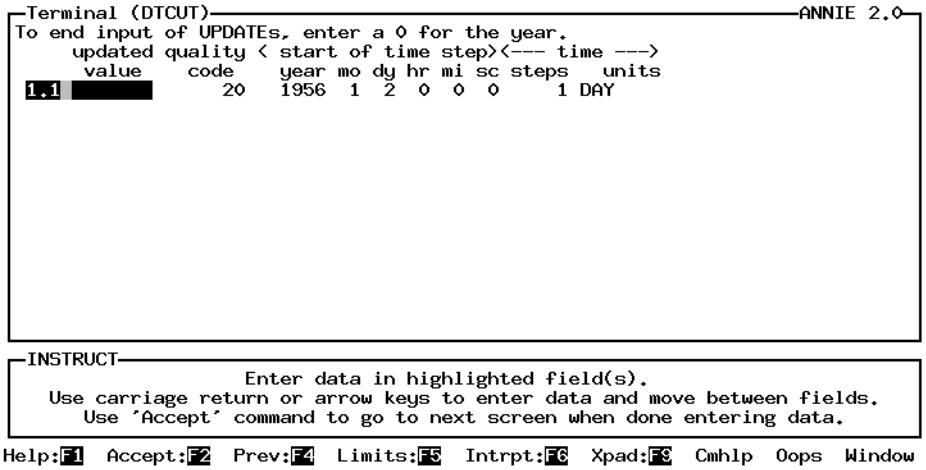

Period (DTCP)
ANNIE 2.0
Enter beginning and ending dates
<= STARTING DATE =>
year mo dy hr mi sc
1956 1 1 0 0 0
<= ENDING DATE =>
year mo dy hr mi sc
1957 12 31 24 0 0
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops

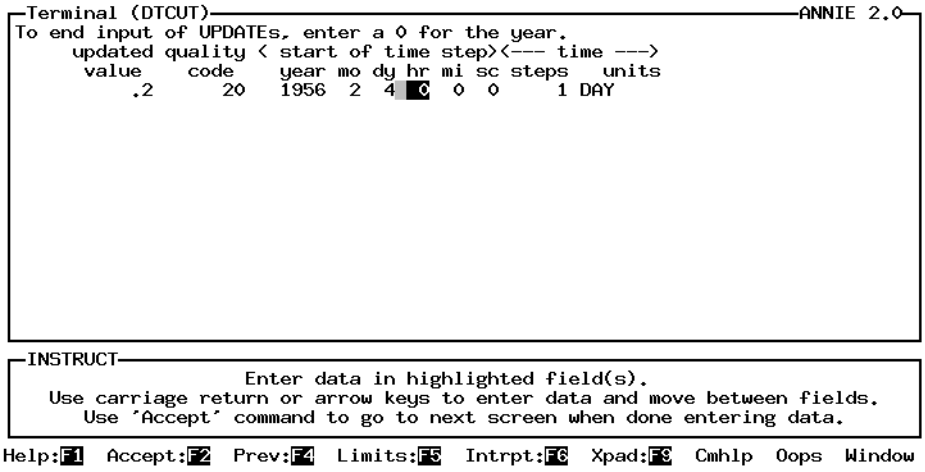

Copy (DTC)
ANNIE 2.0
Select a time-series data Copy option.
Datasets - specify source and target data sets for the copy
Period - define period of record to copy from source to target data set
Update - specify any data value updates for the target data set
Execute - copy from specified source to specified target data set
Return - to the Values screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp

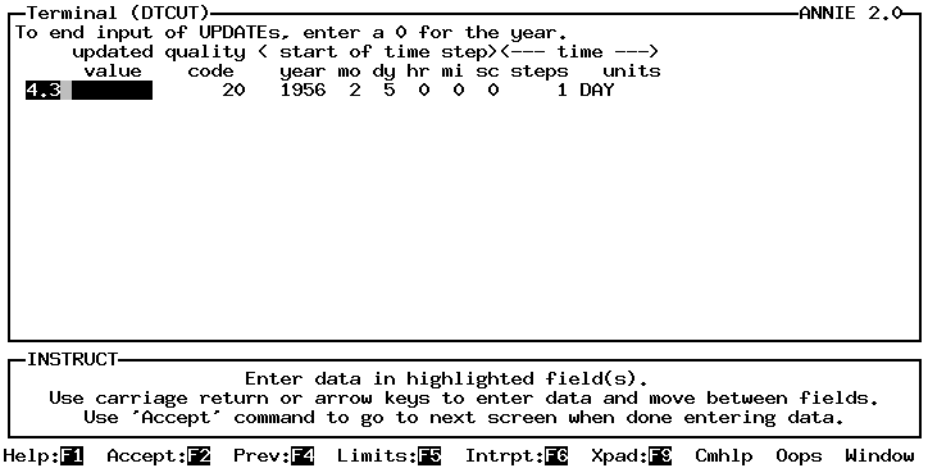

Update (DTCU)
ANNIE 2.0
Select an Update option.
File - get updated data values from an existing file
Terminal - enter updated data values now from terminal
None - no data values to be updated during Copy
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Prev:F4 Xpad:F9 Cmhlp

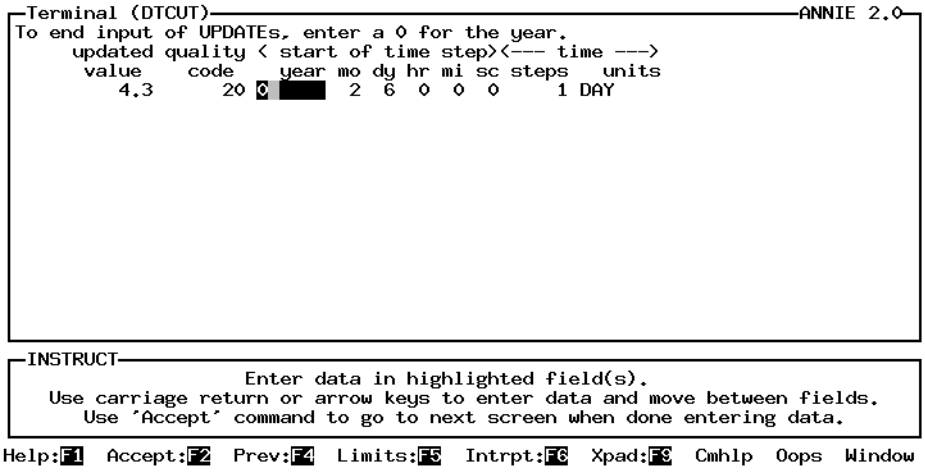

Terminal (DTCUT)
ANNIE 2.0
Enter the name of the file to contain data values updates.
[update.out]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops

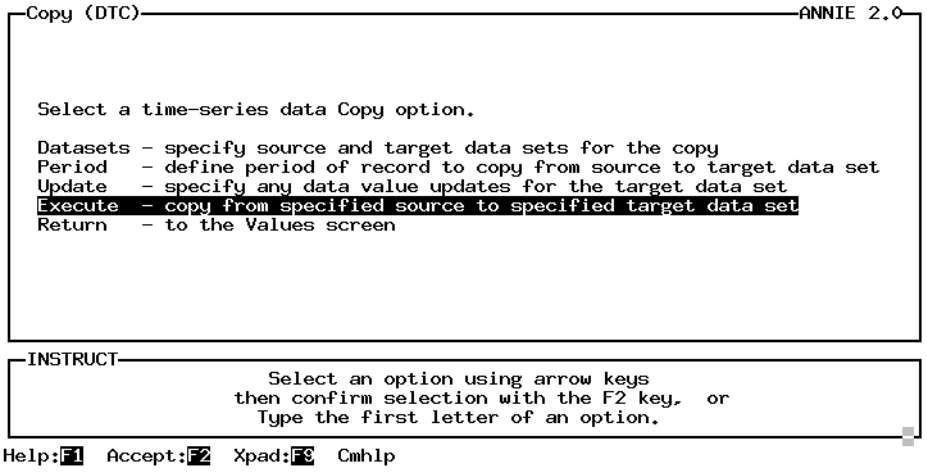

Terminal (DTCUT)
ANNIE 2.0
To end input of UPDATEs, enter a 0 for the year.
updated quality < start of time step><--- time --->
value code year mo dy hr mi sc steps units
3.2 20 1956 1 1 0 0 0 1 DAY
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops Window

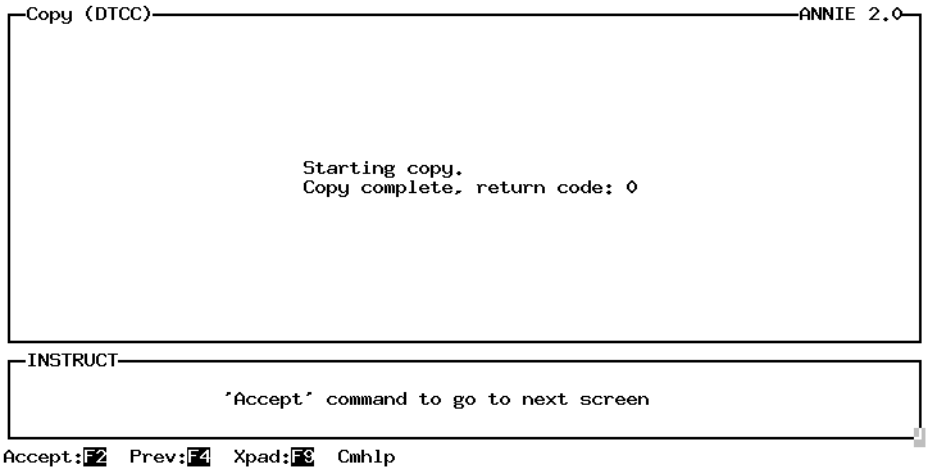

Terminal (DTCUT)
ANNIE 2.0
To end input of UPDATEs, enter a 0 for the year.
updated quality < start of time step><--- time --->
value code year mo dy hr mi sc steps units
1.1 20 1956 1 2 0 0 0 1 DAY
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops Window


Terminal (DTCUT)
ANNIE 2.0
To end input of UPDATEs, enter a 0 for the year.
updated quality < start of time step><--- time --->
value code year mo dy hr mi sc steps units
.2 20 1956 2 4 0 0 0 1 DAY
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops Window


Terminal (DTCUT)
ANNIE 2.0
To end input of UPDATEs, enter a 0 for the year.
updated quality < start of time step><--- time --->
value code year mo dy hr mi sc steps units
4.3 20 1956 2 5 0 0 0 1 DAY
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops Window


Terminal (DTCUT)
ANNIE 2.0
To end input of UPDATEs, enter a 0 for the year.
updated quality < start of time step><--- time --->
value code year mo dy hr mi sc steps units
4.3 20 0 2 6 0 0 0 1 DAY
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops Window





Contents of update.out file:

```
1956  1  1  0  0  0     1      4        3.2     20
1956  1  2  0  0  0     1      4        1.1     20
1956  2  4  0  0  0     1      4         .2     20
1956  2  5  0  0  0     1      4        4.3     20
```

DATA TIME SERIES DELETE

The Delete option is used to delete all or part of the time-series data in a data set. Once the data have been deleted, they cannot be recovered. Data may only be deleted from the end of the time series in a data set; data cannot be deleted at the beginning or in the middle of the time series. See the TIME SERIES/COPY option for a method of deleting data from the beginning or middle of the time series.

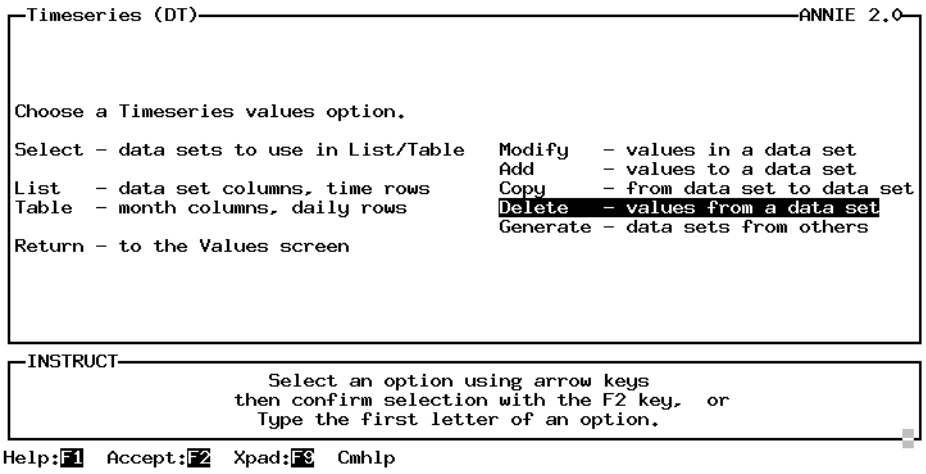
1. Identify the time-series data set from which to delete data.

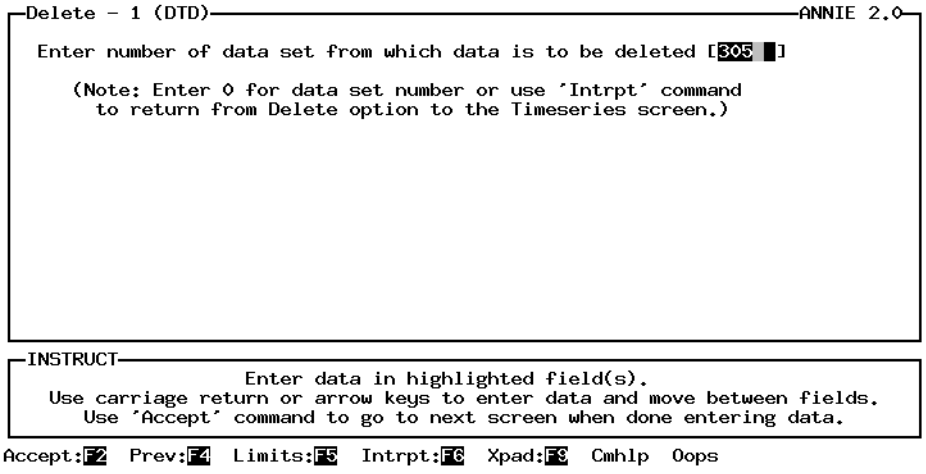
2. Enter the date and time to start deleting data. All time-series data after this date and time will be deleted. By default, the initial date shown is at the end of the time series.

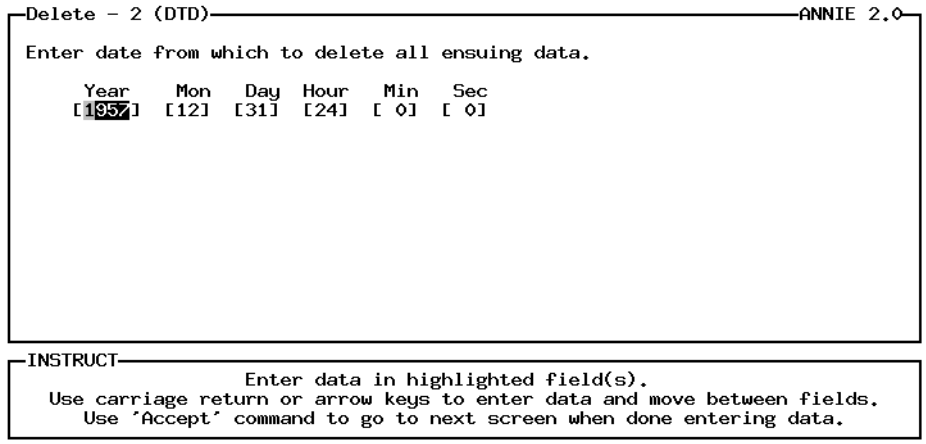
3. Verify that the data should be deleted (Yes) or do not perform the delete (No).

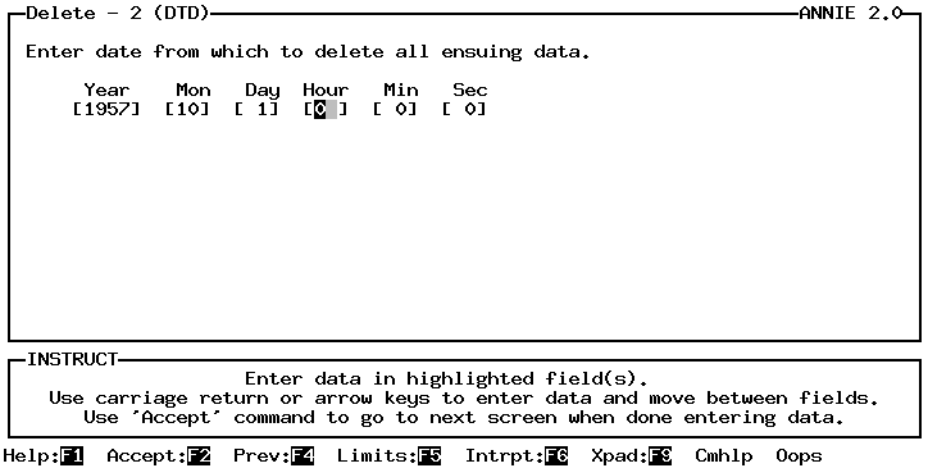
4. Repeat steps 1, 2, and 3 for all desired data sets. Exit the DELETE option by entering a 0 for the data-set number or by executing Intrpt (F6).

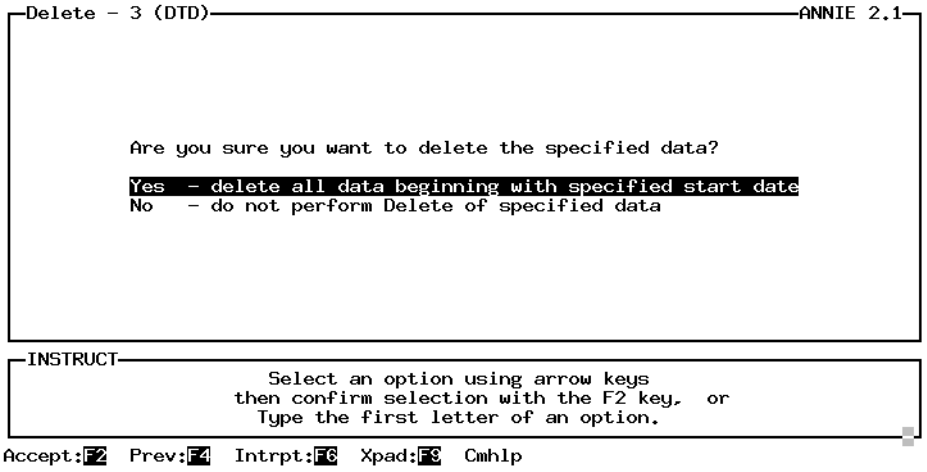
In the example, data are deleted from data-set 305. The data set originally ended December 31, 1957. Three months of data beginning October 1, 1957, was deleted.

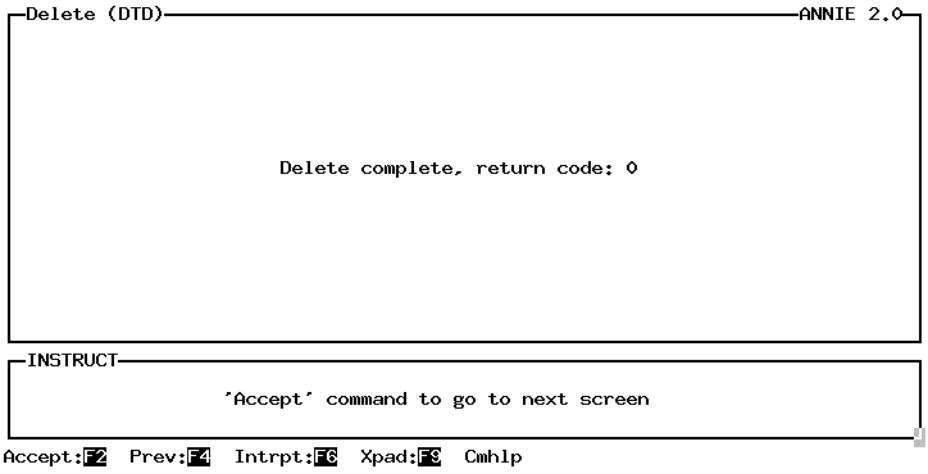



Delete - 1 (DTD)
ANNIE 2.0
Enter number of data set from which data is to be deleted [305]
(Note: Enter 0 for data set number or use 'Intrpt' command
to return from Delete option to the Timeseries screen.)
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops


Delete - 2 (DTD)
ANNIE 2.0
Enter date from which to delete all ensuing data.
Year Mon Day Hour Min Sec
[1957] [12] [31] [24] [0] [0]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops


Delete - 2 (DTD)
ANNIE 2.0
Enter date from which to delete all ensuing data.
Year Mon Day Hour Min Sec
[1957] [10] [1] [0] [0] [0]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops


Delete - 3 (DTD)
ANNIE 2.1
Are you sure you want to delete the specified data?
Yes - delete all data beginning with specified start date
No - do not perform Delete of specified data
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Prev:F4 Intrpt:F6 Xpad:F9 Cmhlp


Delete (DTD)
ANNIE 2.0
Delete complete, return code: 0
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Prev:F4 Intrpt:F6 Xpad:F9 Cmhlp

DATA TIME SERIES GENERATE COMPUTE

The Generate/Compute option is used to transform one or two existing time-series data sets into a new time-series data set based on some mathematical function. Table 2 contains a list of the available mathematical functions.

1 Identify the math Function to be used to generate the new time-series data.

2 Enter the source and target Data sets and any required coefficients. Note that the math function currently selected is listed at the top of the screen. If the target data set does not exist, the program will create it using attributes from the source data set.

3 (Optional) Specify the Period of record to be generated. By default, the period of record will be the period of record of the source data set. If there are two source data sets, the period of record is the period common to the two data sets.

4 Select Execute to generate the new time series.

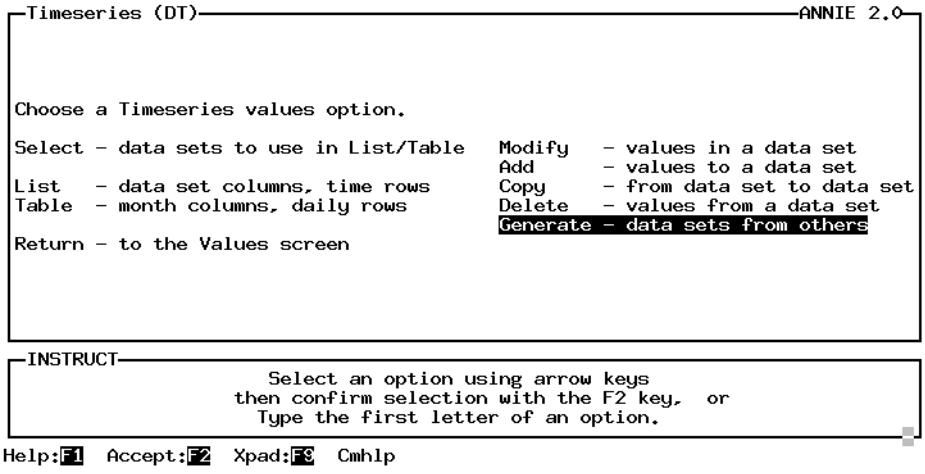
In the example, daily discharge from data-set number 6 was converted from cubic feet per second to equivalent inches over the drainage area and placed in data-set number 12. Because data-set number 12 did not exist, it was created using the attributes from data-set 6. The entire period of record was converted. The constant multiplier 0.0555 was determined based on the drainage area of 0.67 square miles using the conversion equation

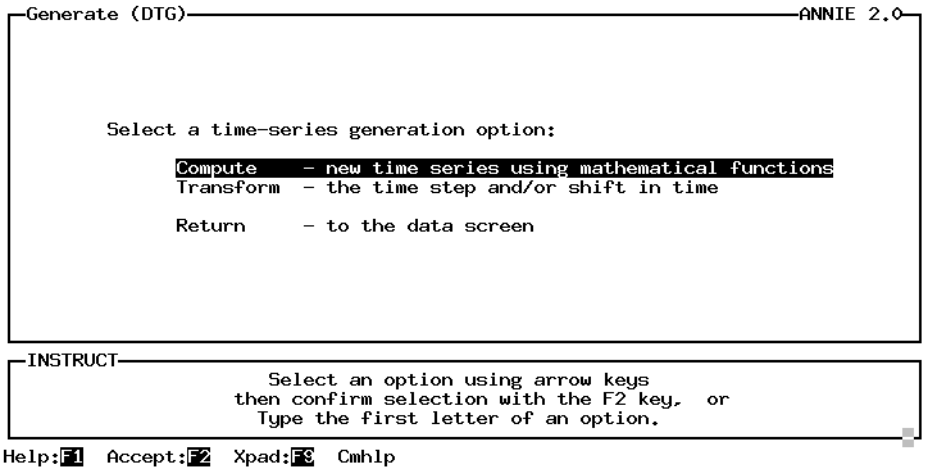
$$\text{inches} = \frac{\text{cfs} - \text{days}}{26.89 * (\text{area in square miles})} = \frac{\text{cfs} - \text{days}}{26.89 * 0.67} = 0.0555 * \text{cfs-days}$$

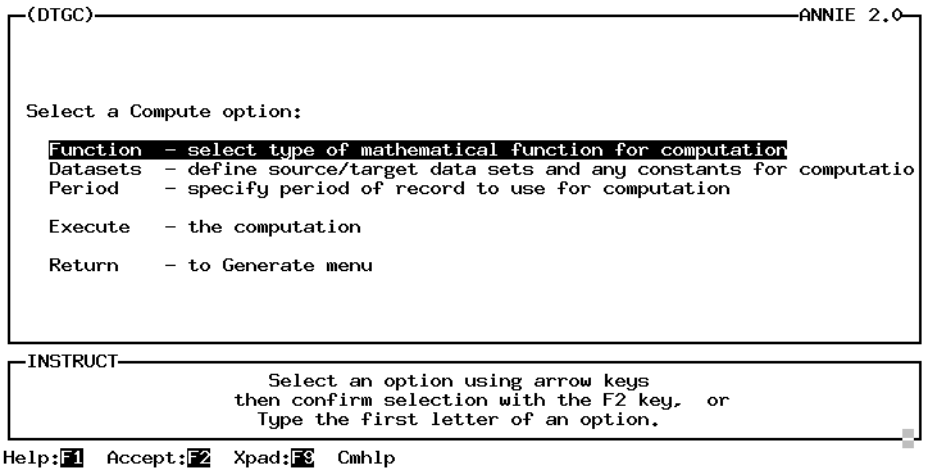
Table 2. Mathematical functions available in Generate/Compute option

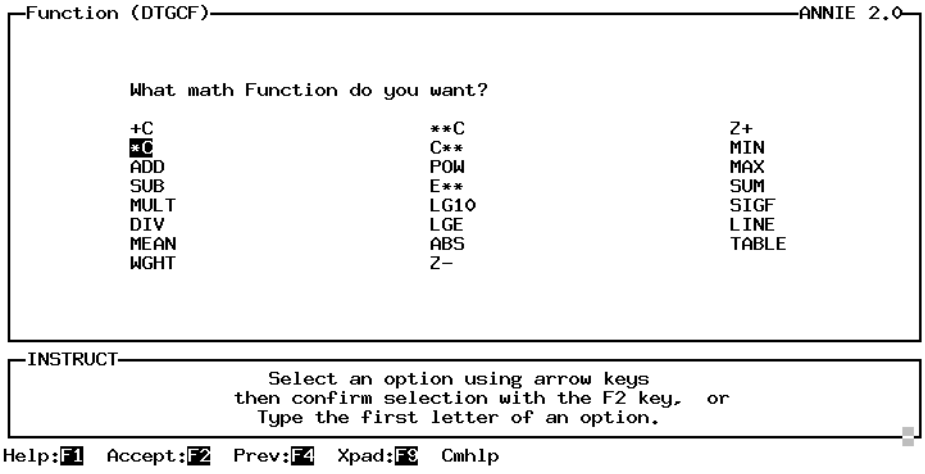
[T, new time series; T1, first existing time series; T2, second existing time series; C, coefficient; C1, coefficient; C2, coefficient]

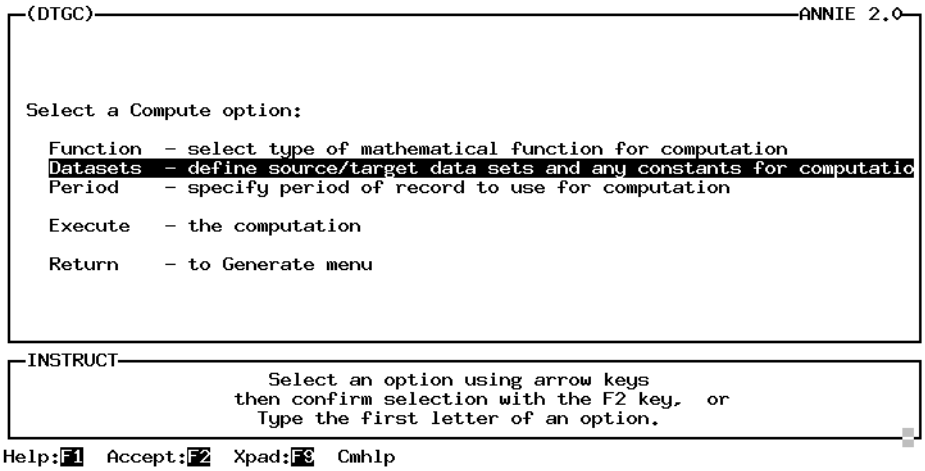
Name	Description	Comments
+C	T = T1 + C	C can be any number
*C	T = T1 * C	C can be any nonzero number
ADD	T = T1 + T2	
SUB	T = T1 - T2	
MULT	T = T1 * T2	
DIV	T = T1 / T2	if T2 = 0, T = 10.0E35
MEAN	T = (T1 + T2) / 2	
WGHT	T = C1 * T1 + C2 * T2	must have C1 + C2 = 1.0
LINE	T = C1 * T1 + C2	C1 and C2 can be any number
**C	T = T1 ** C	C may be any nonzero number
C**	T = C ** T1	C may be any nonzero number
POW	T = T1 ** T2	if T1 = 0 and T2 < 0, then T = 0
E**	T = e ** T1	if T1 > 80.5, then T = 10.0E35
LG10	T = log(T1)	iF T1 <= 0, then T = 10.0E35
LGE	T = ln(T1)	iF T1 <= 0, then T = 10.0E35
ABS	T = abs(T1)	
Z-	T = T1 if T1 >= C1 T = C2 if T1 < C1	
Z+	T = T1 IF T1 <= C1 T = C2 if T1 > C1	
MIN	T = min(T1,T2)	
MAX	T = max(T1,T2)	
SUM	$T_n = T1_1 + T1_2 + ...+T1_n$	
SIGF	T = C significant digits of T1	
TABL	T = table look-up	

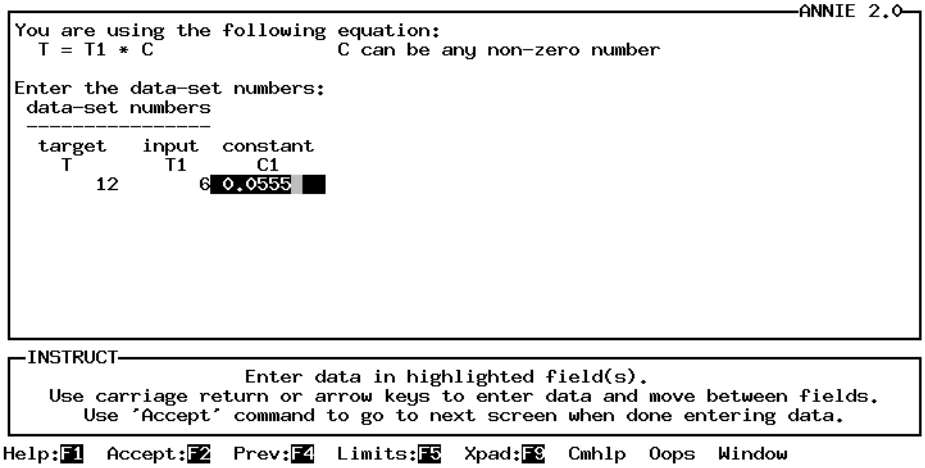

Timeseries (DT)
ANNIE 2.0
Choose a Timeseries values option.
Select - data sets to use in List/Table
List - data set columns, time rows
Table - month columns, daily rows
Return - to the Values screen
Modify - values in a data set
Add - values to a data set
Copy - from data set to data set
Delete - values from a data set
Generate - data sets from others
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp

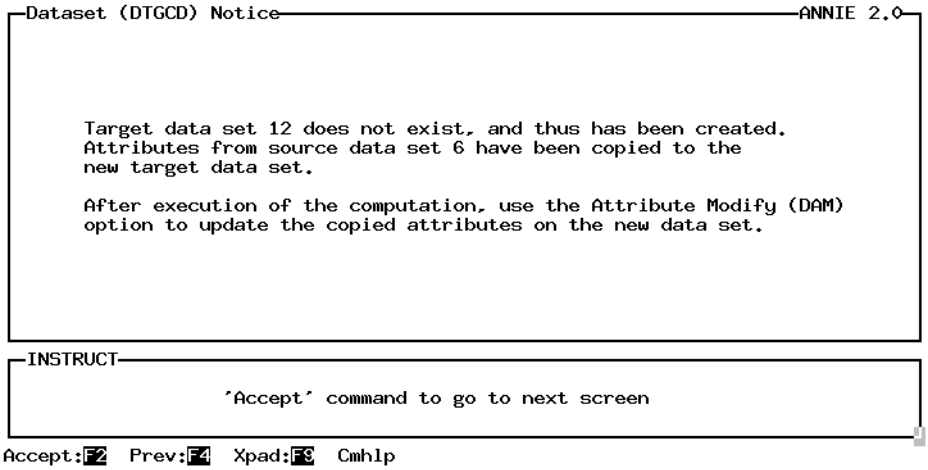

Generate (DTG)
ANNIE 2.0
Select a time-series generation option:
Compute - new time series using mathematical functions
Transform - the time step and/or shift in time
Return - to the data screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp

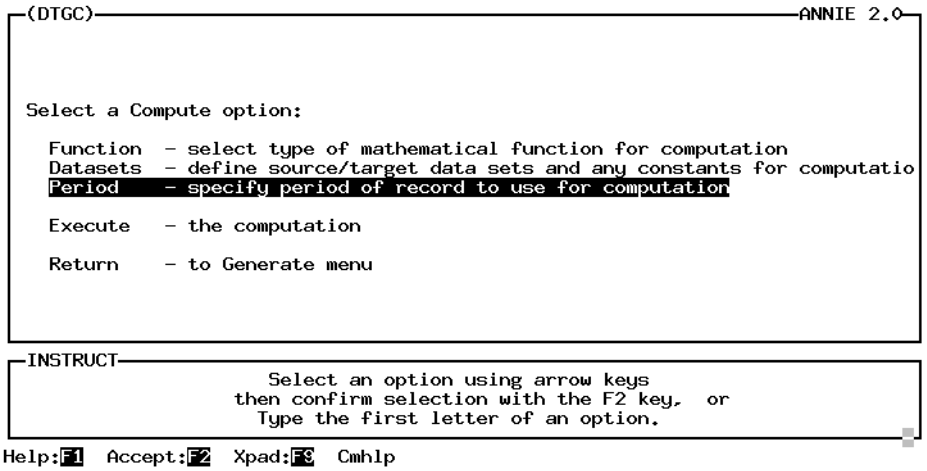

(DTGC)
ANNIE 2.0
Select a Compute option:
Function - select type of mathematical function for computation
Datasets - define source/target data sets and any constants for computatio
Period - specify period of record to use for computation
Execute - the computation
Return - to Generate menu
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp

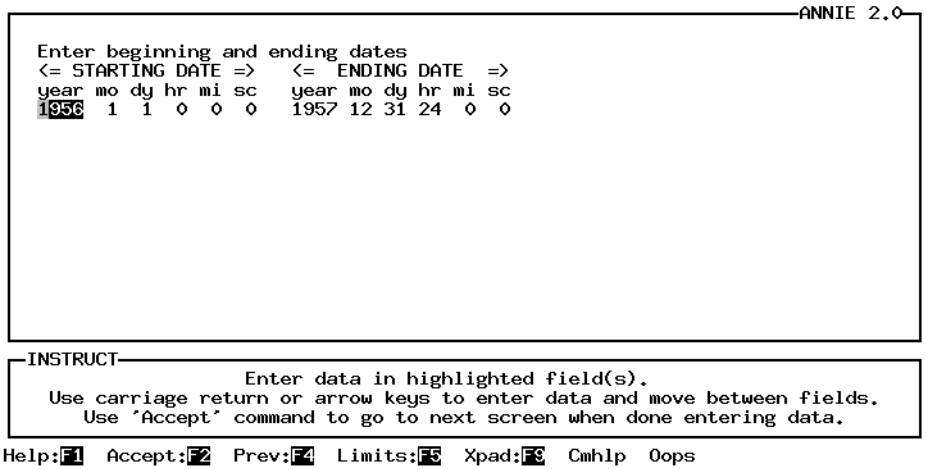

Function (DTGCF)
ANNIE 2.0
What math Function do you want?
+C
*C
ADD
SUB
MULT
DIV
MEAN
WGHT
**C
C**
POW
E**
LG10
LGE
ABS
Z-
Z+
MIN
MAX
SUM
SIGF
LINE
TABLE
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Prev:F4 Xpad:F9 Cmhlp

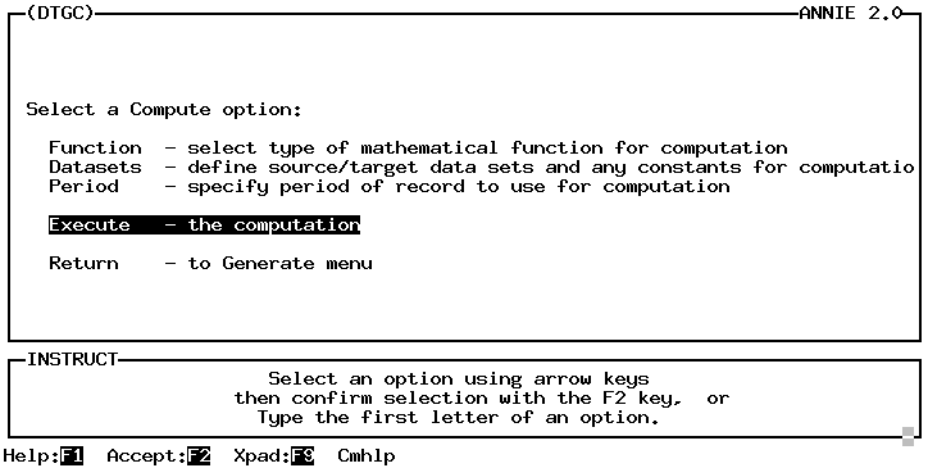

(DTGC)
ANNIE 2.0
Select a Compute option:
Function - select type of mathematical function for computation
Datasets - define source/target data sets and any constants for computatic
Period - specify period of record to use for computation
Execute - the computation
Return - to Generate menu
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp

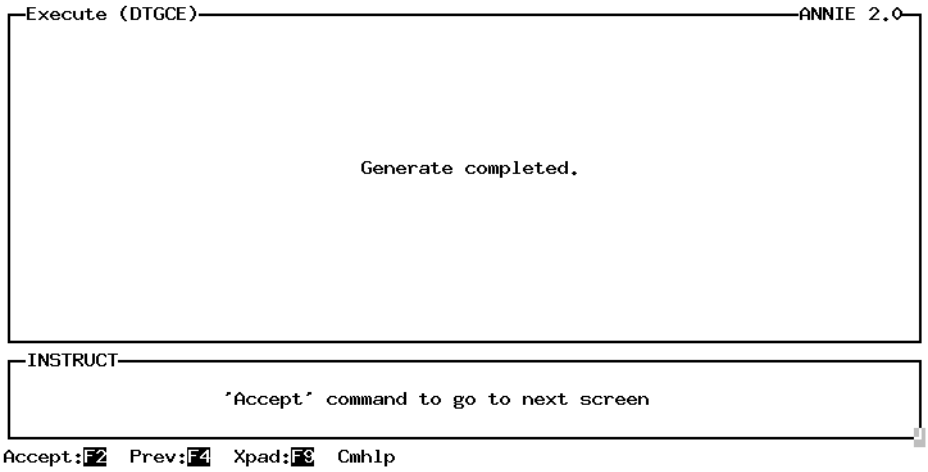

ANNIE 2.0
You are using the following equation:
T = T1 * C
C can be any non-zero number
Enter the data-set numbers:
data-set numbers
target
T
12
input
T1
6
constant
C1
0.0555
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops Window


Dataset (DTGCD) Notice
ANNIE 2.0
Target data set 12 does not exist, and thus has been created.
Attributes from source data set 6 have been copied to the
new target data set.
After execution of the computation, use the Attribute Modify (DAM)
option to update the copied attributes on the new data set.
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Prev:F4 Xpad:F9 Cmhlp


(DTGC)
ANNIE 2.0
Select a Compute option:
Function - select type of mathematical function for computation
Datasets - define source/target data sets and any constants for computatio
Period - specify period of record to use for computation
Execute - the computation
Return - to Generate menu
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp


ANNIE 2.0
Enter beginning and ending dates
<= STARTING DATE => <= ENDING DATE =>
year mo dy hr mi sc year mo dy hr mi sc
1956 1 1 0 0 0 1957 12 31 24 0 0
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops


(DTGC)
ANNIE 2.0
Select a Compute option:
Function - select type of mathematical function for computation
Datasets - define source/target data sets and any constants for computatio
Period - specify period of record to use for computation
Execute - the computation
Return - to Generate menu
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp


Execute (DTGCE)
ANNIE 2.0
Generate completed.
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Prev:F4 Xpad:F9 Cmhlp

DATA
TIME SERIES
GENERATE
TRANSFORM

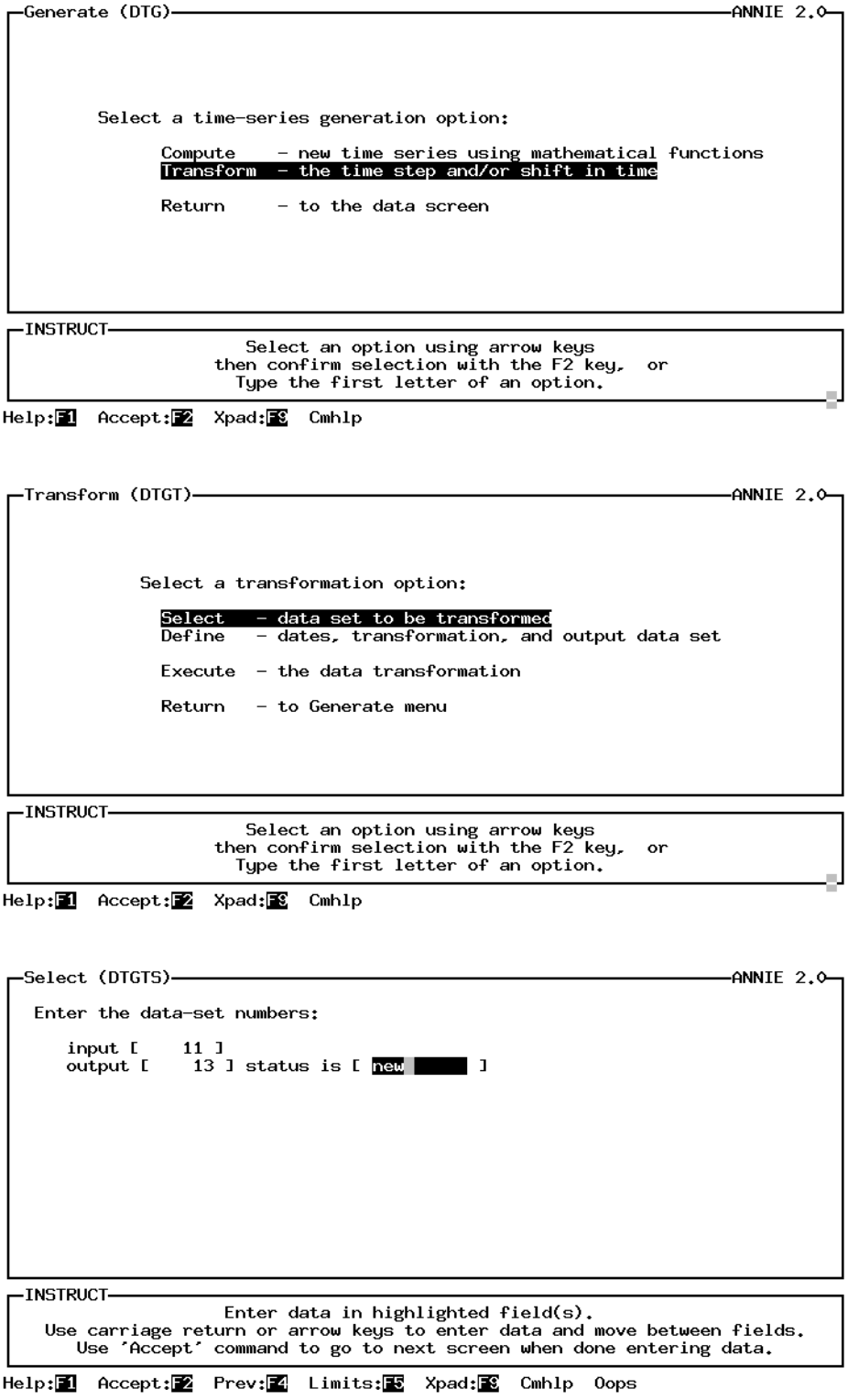
The Generate/Transform option is used to shift data in time and (or) to aggregate or disaggregate data over time. Shifts may be needed to correct for errors in recording clocks or to account for daylight savings time or time zone changes. Aggregation and disaggregation are based on the time interval attributes of the input and output data sets. When the time interval of the input data set is larger than the output data set, disaggregation, the transformations DIVIDE or SAME may be selected. When the time interval of the input data set is smaller than the output data set, aggregation, the transformations SUM, AVERAGE, MAX, or MIN may be selected. In both cases, the larger time interval must be an even multiple of the smaller time interval. When transforming the time step or (and) shifting data in time, it is important that the starting and ending dates be compatible with the time step of both the input and output data sets. For example, with a daily time step the beginning time is 00:00 and the ending time is 24:00. All time steps smaller than 1 day should evenly divide into 1 day.

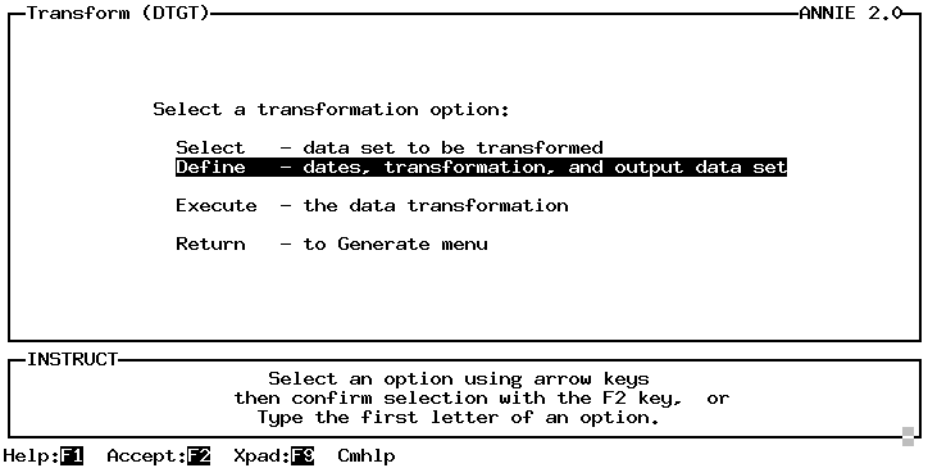
1 Select the input and output data sets and the expected status of the output data set. If the output data set does not exist and the status is NEW, the program will create the data set using attributes from the source data set, modifying the time-step attributes as appropriate.

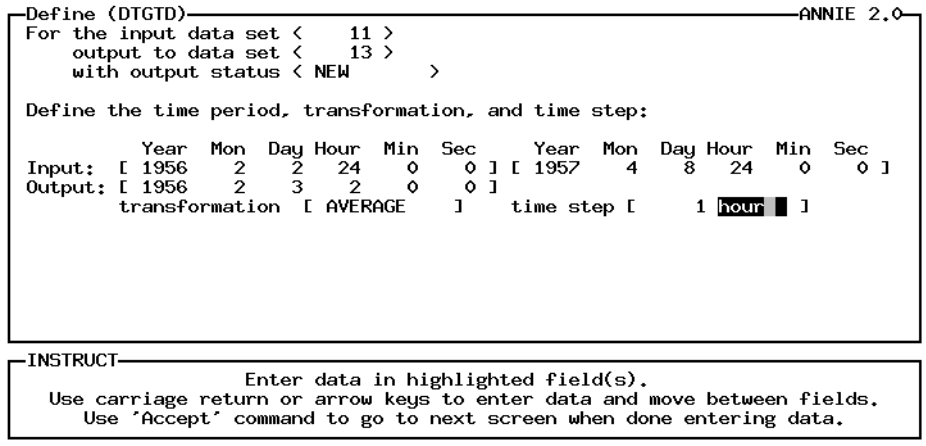
2 (Optional) Define the period of record to be transformed, the new starting date if the data are to be shifted in time, the type of transformation to be used, and the time step and units for the output data set. For disaggregation, the valid transformations are DIVIDE and SAME. For aggregation, the valid transformations are SUM, AVERAGE, MAX, and MIN. By default, there would be no shift in time or change in time step.

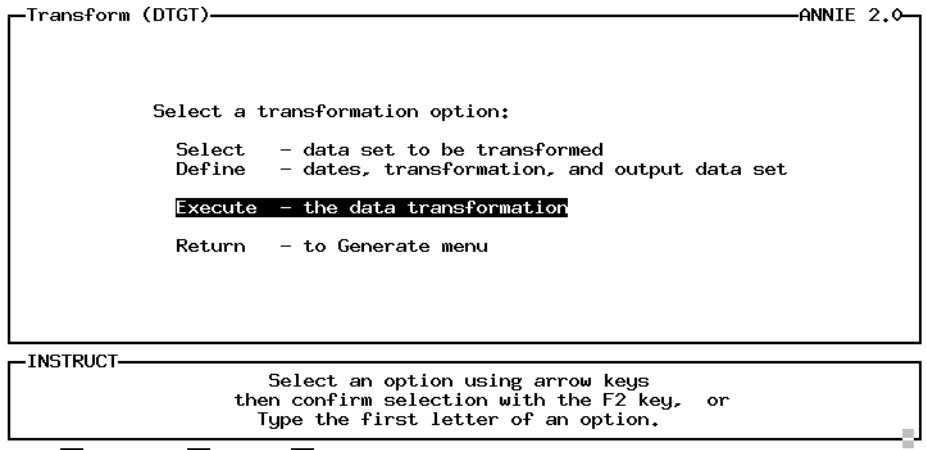
3 Select Execute to generate the new time series.

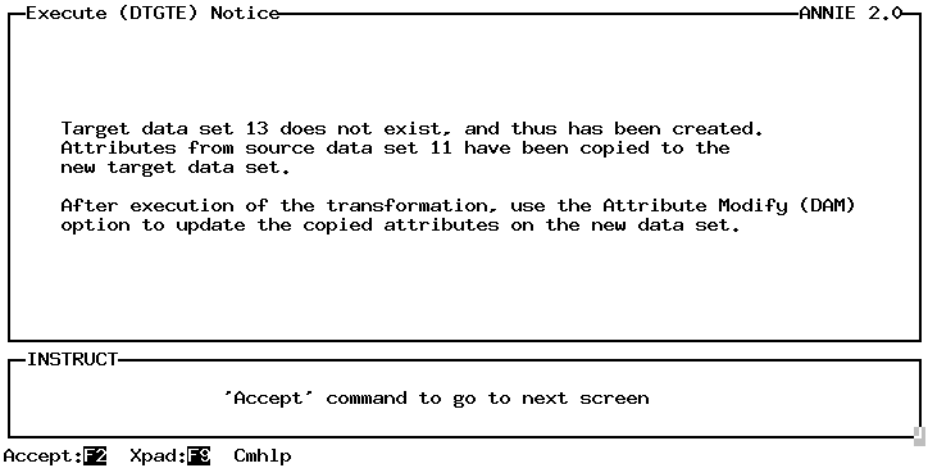
In the example, 15-minute discharge values from data-set number 11 were transformed and placed in the new data-set number 13. The 15-minute data were aggregated to a 1-hour time step using an AVERAGE transformation and shifted forward in time 2 hours from the original start of 1956/2/2/24:00:00 to 1956/2/3/02:00:00. The attributes from data-set 11 were used for data-set 13, with the time step and units modified to reflect the time-step transformation. The date and time associated with each row in the list is at the end of the time step.

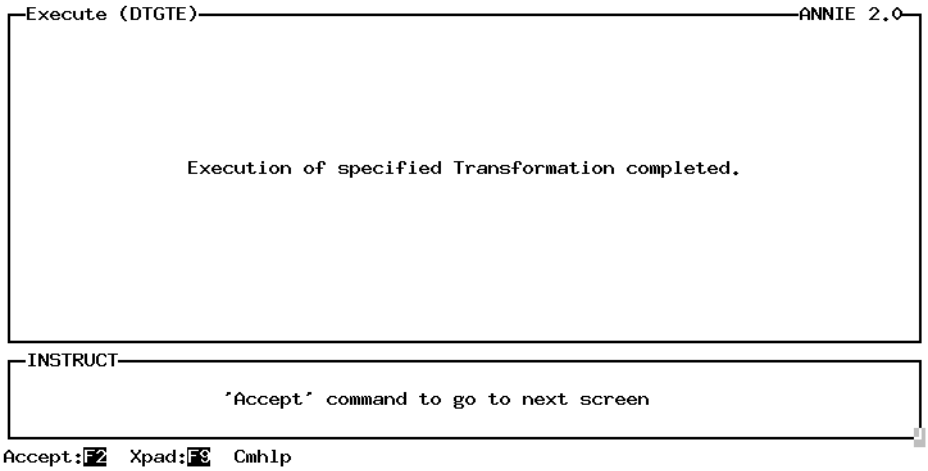

Generate (DTG) ANNIE 2.0
Select a time-series generation option:
Compute - new time series using mathematical functions
Transform - the time step and/or shift in time
Return - to the data screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp
Transform (DTGT) ANNIE 2.0
Select a transformation option:
Select - data set to be transformed
Define - dates, transformation, and output data set
Execute - the data transformation
Return - to Generate menu
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp
Select (DTGTS) ANNIE 2.0
Enter the data-set numbers:
input [11]
output [13] status is [new]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops


Transform (DTGT)
ANNIE 2.0
Select a transformation option:
Select - data set to be transformed
Define - dates, transformation, and output data set
Execute - the data transformation
Return - to Generate menu
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp


Define (DTGTD)
ANNIE 2.0
For the input data set < 11 >
output to data set < 13 >
with output status < NEW >
Define the time period, transformation, and time step:
Year Mon Day Hour Min Sec Year Mon Day Hour Min Sec
Input: [1956 2 2 24 0 0] [1957 4 8 24 0 0]
Output: [1956 2 3 2 0 0]
transformation [AVERAGE] time step [1 hour]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops


Transform (DTGT)
ANNIE 2.0
Select a transformation option:
Select - data set to be transformed
Define - dates, transformation, and output data set
Execute - the data transformation
Return - to Generate menu
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp


Execute (DTGTE) Notice
ANNIE 2.0
Target data set 13 does not exist, and thus has been created.
Attributes from source data set 11 have been copied to the
new target data set.
After execution of the transformation, use the Attribute Modify (DAM)
option to update the copied attributes on the new data set.
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Xpad:F3 Cmhlp


Execute (DTGTE)
ANNIE 2.0
Execution of specified Transformation completed.
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Xpad:F3 Cmhlp

DATA TIME SERIES LIST

The List option is used to list time-series data values from one or more data sets over a specified time period. The list may include data values that are within some specified range or data values that are outside some specified range or exceed some tolerance level. This may be a convenient format for transferring data from a WDM file to a spreadsheet or statistical package. The format of the file is columns of data sets by rows of time steps. The first column contains the date and time of the row, with the listed time being at the end of the time step.

Data may be listed at a time step other than the time step of the data set. The transformation code to be used can be entered for each of the data sets being listed. The available time transformations are:

TOTAL	sum when changing to a larger time step divide when changing to a smaller time step
RATE	average when changing to a larger time step same when changing to a smaller time step
MAXIMUM	maximum when changing to a larger time step same when changing to a smaller time step
MINIMUM	minimum when changing to a larger time step same when changing to a smaller time step

0 The List option requires that the data-set buffer contain the numbers of the data sets that will be listed. The data-set buffer cannot be populated under List; use SELECT to identify the data sets before choosing List. Up to 30 data sets may be included in a list directed to a file; 7 data sets may be listed to the terminal.

1 (Optional) Select Time to define the period of record and the time step to be used for the listing and the transformation to be used for output time steps different from that of the data. By default, the common period of record will be used with the time step being the smallest time step of all of the data sets being listed. By default, the TOTAL transformation will be used when a time change is required.

2 (Optional) Select Output to define the format of the output. By default, the list will be output to the TERMINAL. The output may also be directed to a FILE.

3 (Optional) Select Aggregate to include daily, monthly, annual, and Grand SUMS or AVERAGES. By default, NONE of the summaries are included in the list. (Note, this is not the same as the transformation under Time above.)

4 (Optional) Select Limits to specify the data to be included in the list. By default, the Limits/List default options will be used. The Limits/List and Limits/Screen options are mutually exclusive.

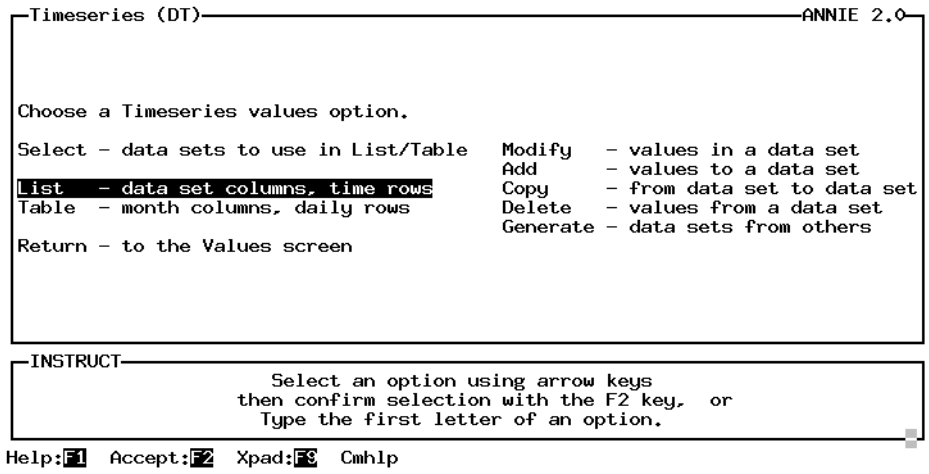
A. Select List to include data values that are within a specified range. By default, data values greater than 0.0 and less than 9.0E+9 with a quality flag of 30 or

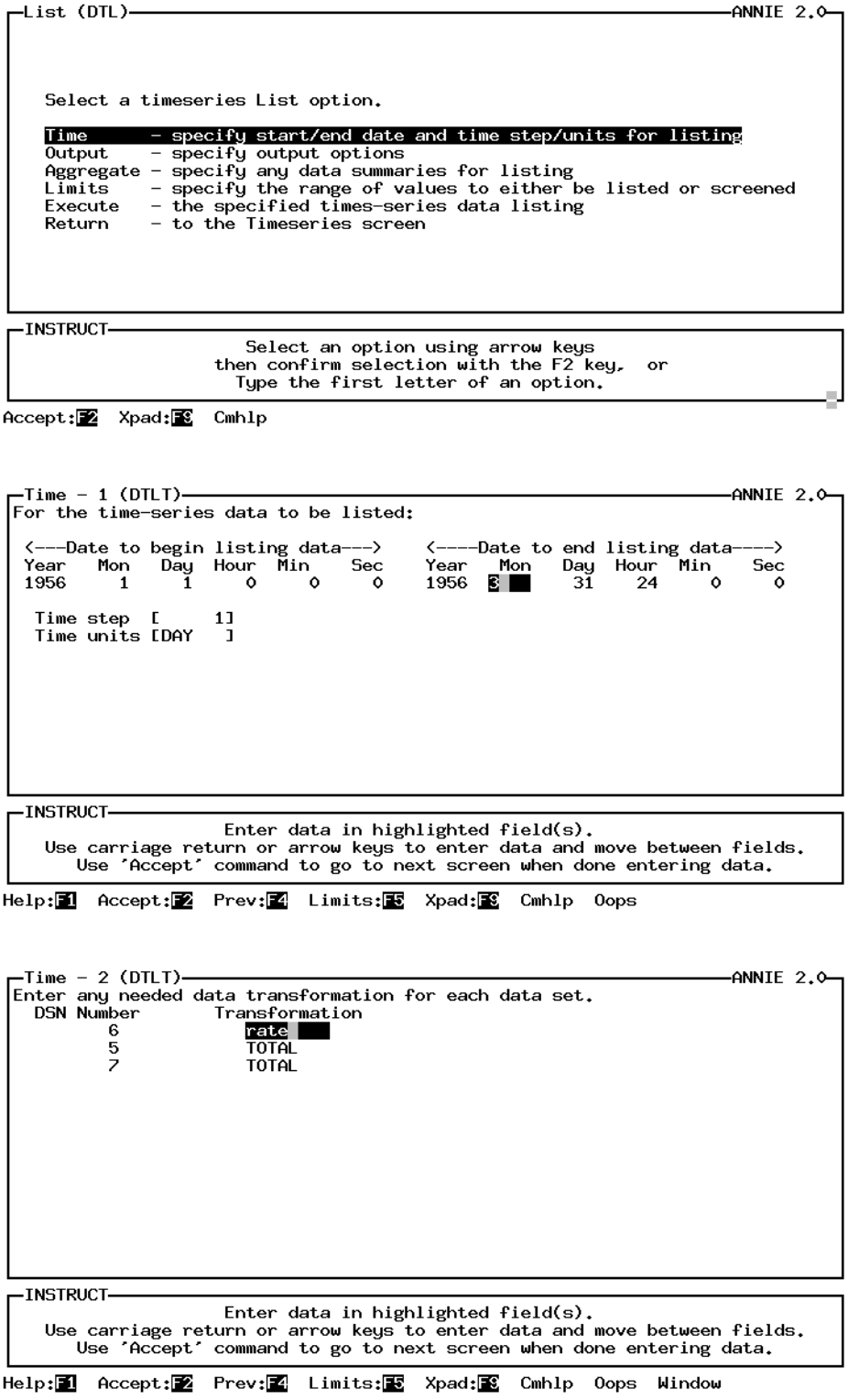
less will be included. The data will be listed with two decimal places and five significant digits.

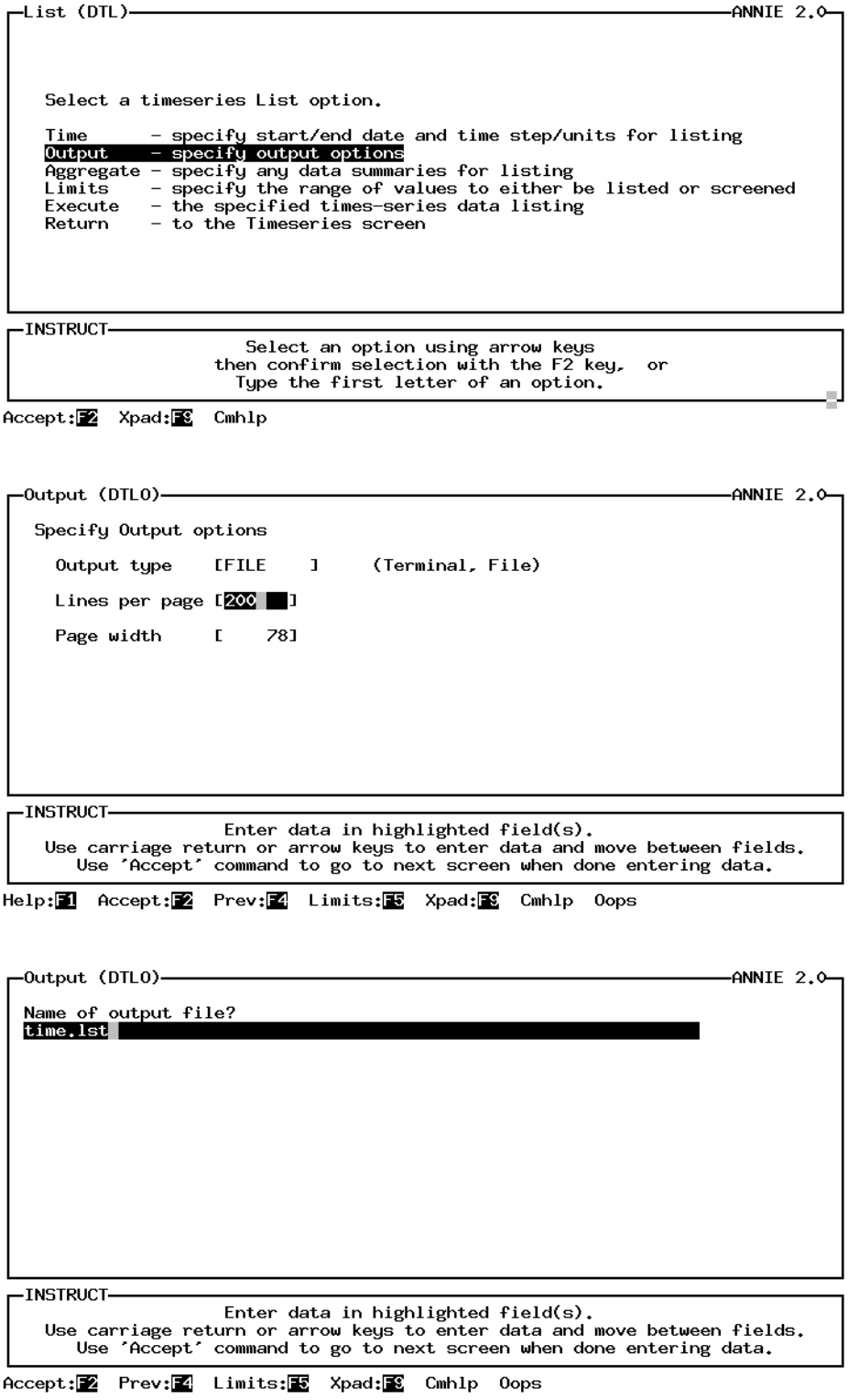
B. Select Screen to include data values outside a specified range and data values that exceed some specified change between time steps. By default, data values less than 0.0 or greater than 9.0E+9 with a quality flag of 30 or less will be included. Data values that exceed a specified percent change or absolute change between time steps also will be included. The data will be listed with two decimal places and five significant digits.

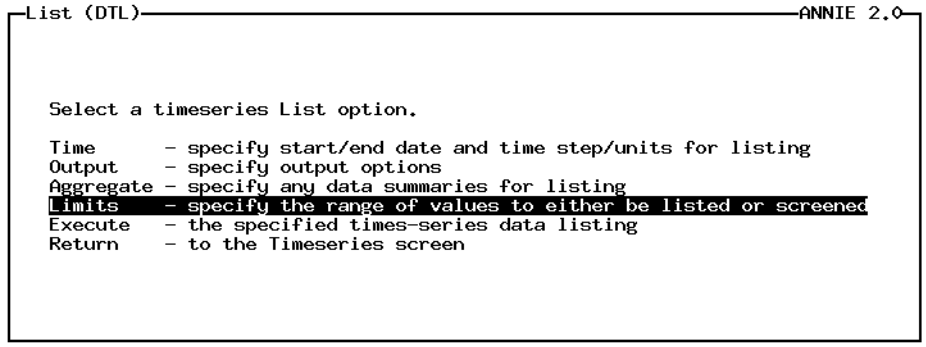
5 Select Execute to generate the list.

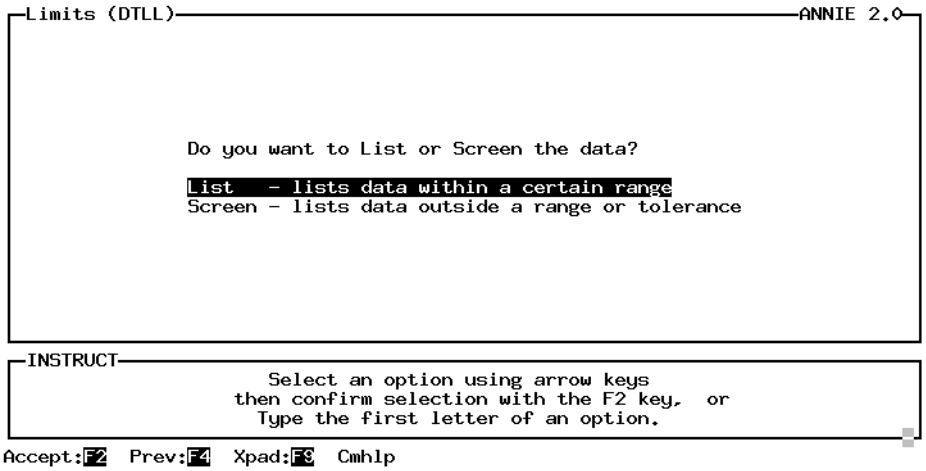
In the example, daily time-series data from data-sets 6, 5, and 7 are listed to the file time.lst. The data are first listed using the Limits/List option to include data values between 0.0 and 1000. The data sets are then listed using the Limits/Screen option to limit the list to values below 0.0, or values greater than 1000, or values that are greater than 1000 percent of the data value of the previous time step, or values that are greater than an absolute change of 20 from one time step to the next. A value that meets any one of the four conditions will be included in the listing.

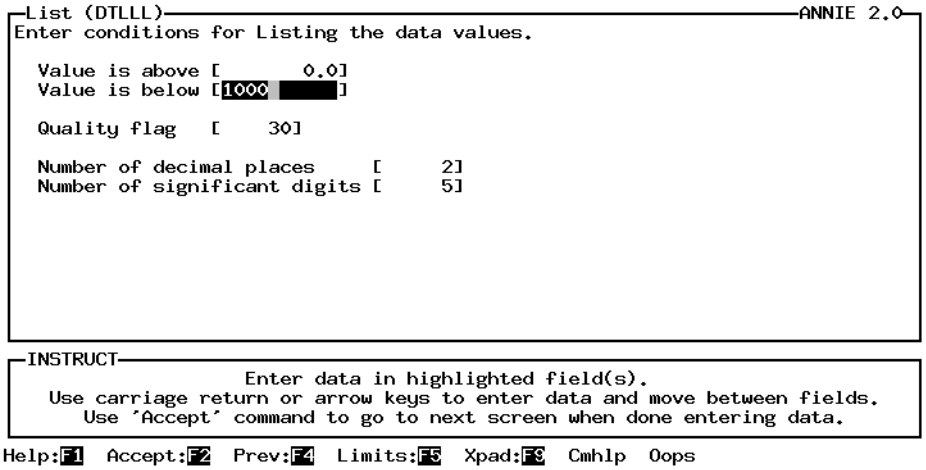


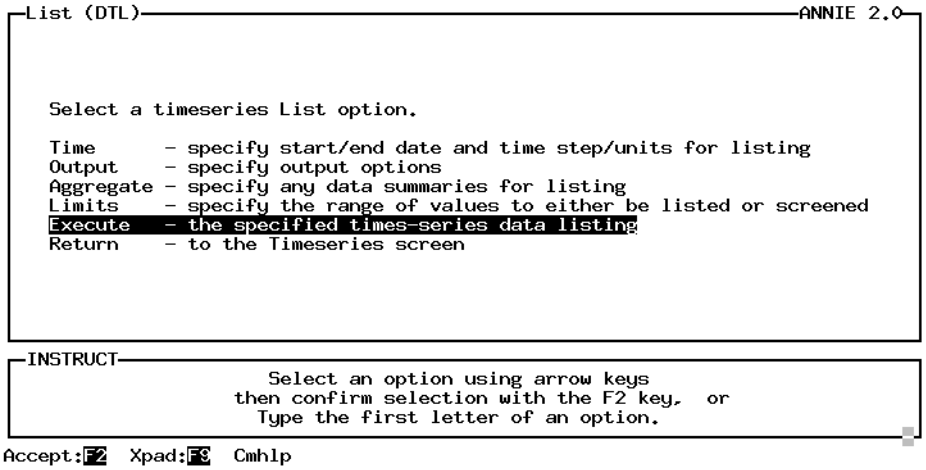

List (DTL)
ANNIE 2.0
Select a timeseries List option.
Time - specify start/end date and time step/units for listing
Output - specify output options
Aggregate - specify any data summaries for listing
Limits - specify the range of values to either be listed or screened
Execute - the specified times-series data listing
Return - to the Timeseries screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Xpad:F9 Cmhlp
Time - 1 (DTLT)
ANNIE 2.0
For the time-series data to be listed:
<---Date to begin listing data--->
<----Date to end listing data---->
Year Mon Day Hour Min Sec
Year Mon Day Hour Min Sec
1956 1 1 0 0 0
1956 3 31 24 0 0
Time step [1]
Time units [DAY]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops
Time - 2 (DTLT)
ANNIE 2.0
Enter any needed data transformation for each data set.
DSN Number
Transformation
6
rate
5
TOTAL
7
TOTAL
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops Window

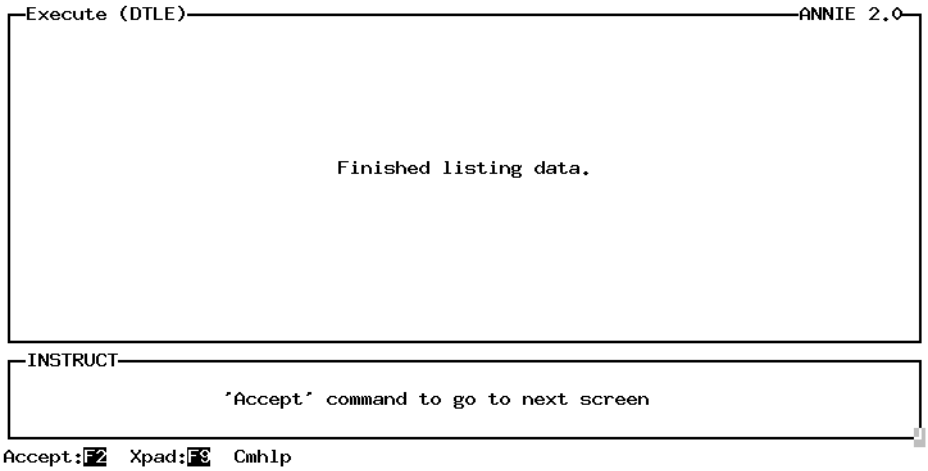

List (DTL) ANNIE 2.0
Select a timeseries List option.
Time - specify start/end date and time step/units for listing
Output - specify output options
Aggregate - specify any data summaries for listing
Limits - specify the range of values to either be listed or screened
Execute - the specified times-series data listing
Return - to the Timeseries screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Xpad:F9 Cmhlp
Output (DTLO) ANNIE 2.0
Specify Output options
Output type [FILE] (Terminal, File)
Lines per page [200]
Page width [78]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops
Output (DTLO) ANNIE 2.0
Name of output file?
time.lst
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops

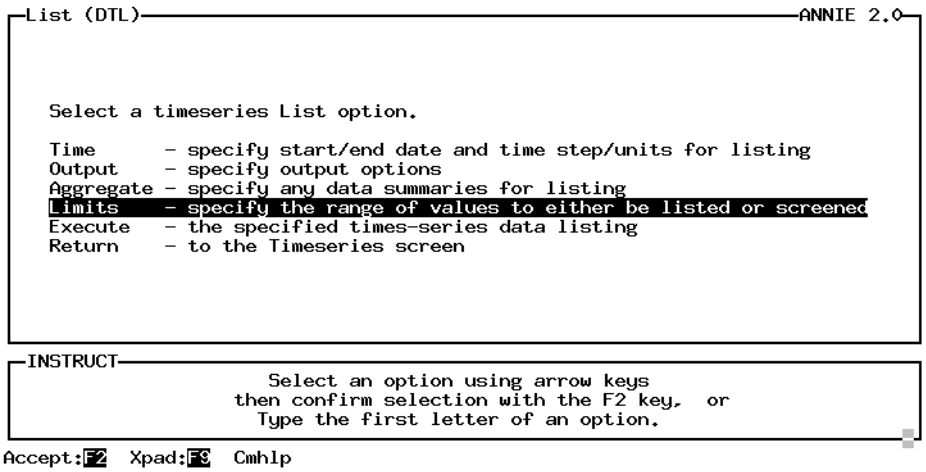

List (DTL)
ANNIE 2.0
Select a timeseries List option.
Time - specify start/end date and time step/units for listing
Output - specify output options
Aggregate - specify any data summaries for listing
Limits - specify the range of values to either be listed or screened
Execute - the specified times-series data listing
Return - to the Timeseries screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Xpad:F9 Cmhlp

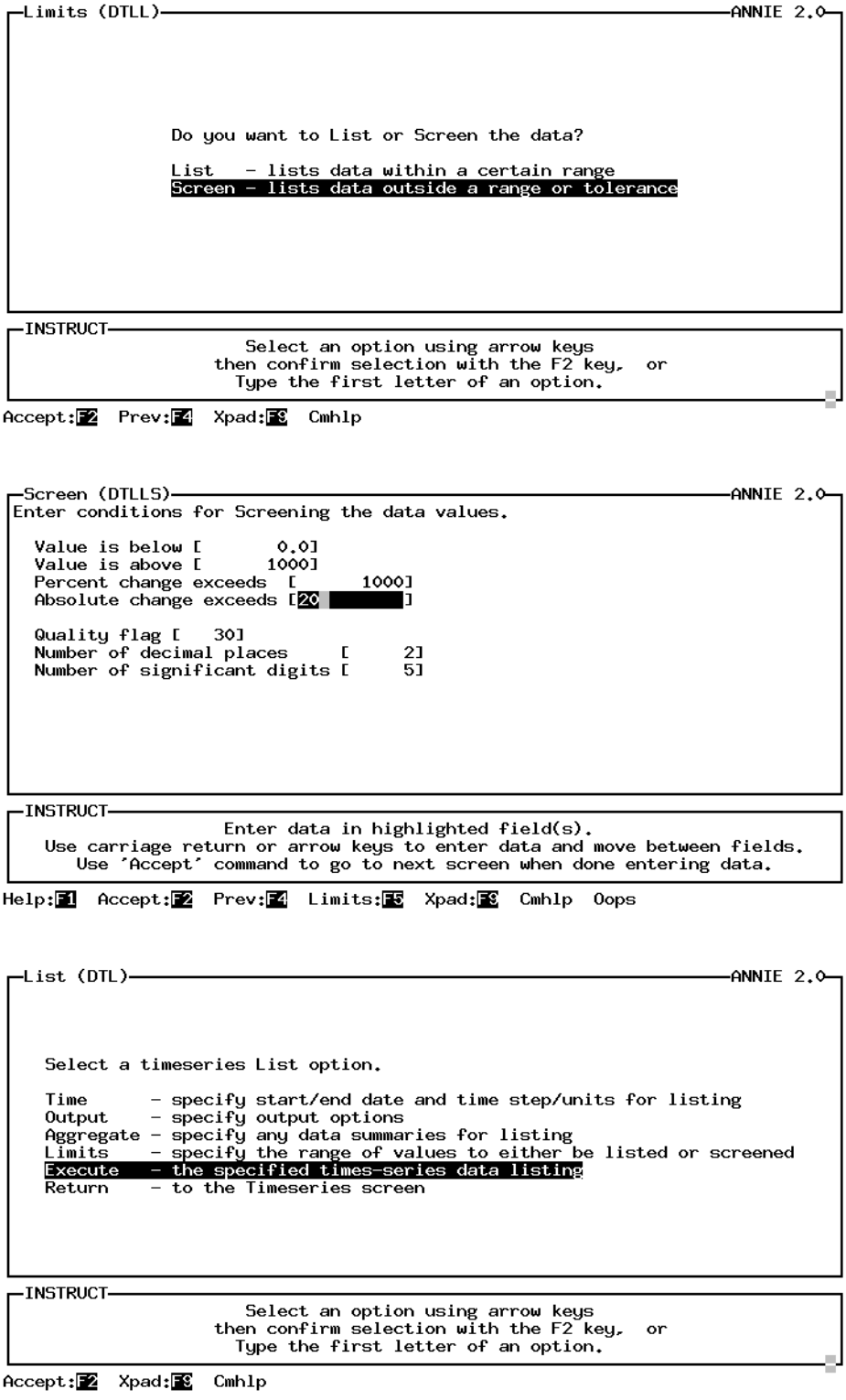

Limits (DTLL)
ANNIE 2.0
Do you want to List or Screen the data?
List - lists data within a certain range
Screen - lists data outside a range or tolerance
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Prev:F4 Xpad:F9 Cmhlp

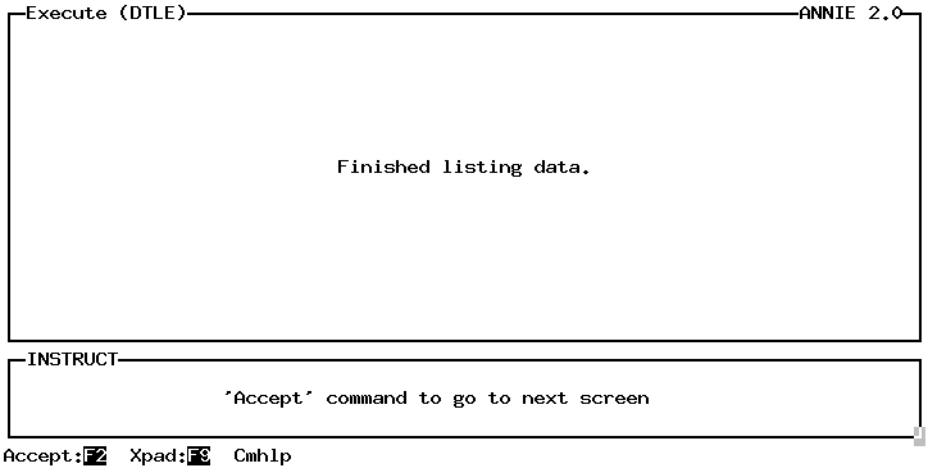

List (DTLLL)
ANNIE 2.0
Enter conditions for Listing the data values.
Value is above [0.0]
Value is below [1000]
Quality flag [30]
Number of decimal places [2]
Number of significant digits [5]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops

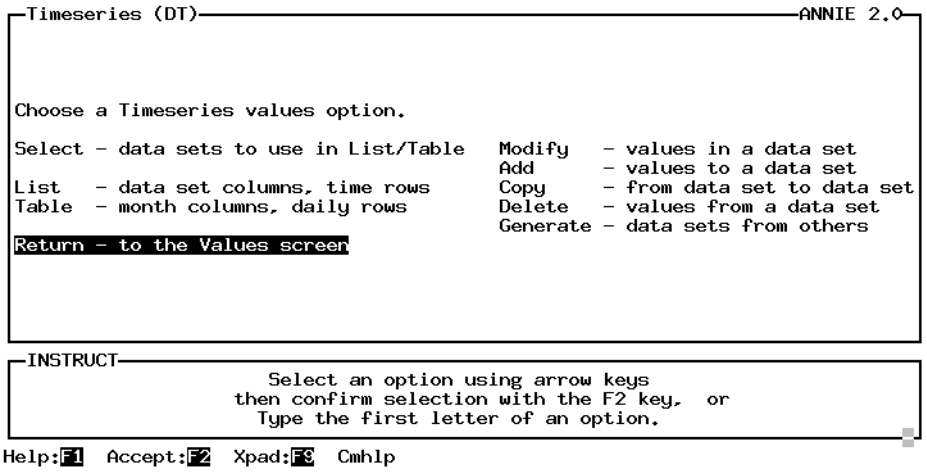

List (DTL)
ANNIE 2.0
Select a timeseries List option.
Time - specify start/end date and time step/units for listing
Output - specify output options
Aggregate - specify any data summaries for listing
Limits - specify the range of values to either be listed or screened
Execute - the specified times-series data listing
Return - to the Timeseries screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Xpad:F3 Cmhlp


Execute (DTLE)
ANNIE 2.0
Finished listing data.
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Xpad:F3 Cmhlp


List (DTL)
ANNIE 2.0
Select a timeseries List option.
Time - specify start/end date and time step/units for listing
Output - specify output options
Aggregate - specify any data summaries for listing
Limits - specify the range of values to either be listed or screened
Execute - the specified times-series data listing
Return - to the Timeseries screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Xpad:F3 Cmhlp


Limits (DTLL)
ANNIE 2.0
Do you want to List or Screen the data?
List - lists data within a certain range
Screen - lists data outside a range or tolerance
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Prev:F4 Xpad:F9 Cmhlp
Screen (DTLLS)
ANNIE 2.0
Enter conditions for Screening the data values.
Value is below [0.0]
Value is above [1000]
Percent change exceeds [1000]
Absolute change exceeds [20]
Quality flag [30]
Number of decimal places [2]
Number of significant digits [5]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops
List (DTL)
ANNIE 2.0
Select a timeseries List option.
Time - specify start/end date and time step/units for listing
Output - specify output options
Aggregate - specify any data summaries for listing
Limits - specify the range of values to either be listed or screened
Execute - the specified times-series data listing
Return - to the Timeseries screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Xpad:F9 Cmhlp


Execute (DTLE)
ANNIE 2.0
Finished listing data.
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Xpad:F9 Cmhlp


Timeseries (DT)
ANNIE 2.0
Choose a Timeseries values option.
Select - data sets to use in List/Table
List - data set columns, time rows
Table - month columns, daily rows
Modify - values in a data set
Add - values to a data set
Copy - from data set to data set
Delete - values from a data set
Generate - data sets from others
Return - to the Values screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp

Listing of time.lst: (Limits/List)

```
          ( * ) is for out-of-range data

-------------------------------------------------------------
Data-set number               6          5          7
Data-set name           3407100       PREC       EVAP
-------------------------------------------------------------
1956 FEB  1                5.00          *       0.03
1956 FEB  2                3.00          *       0.03
1956 FEB  3               11.00          *       0.03
1956 FEB  4               15.00          *       0.03
1956 FEB  5                3.80          *       0.03
1956 FEB  6                6.60          *       0.03
1956 FEB  7                3.70          *       0.03
1956 FEB  8                2.10          *       0.03
1956 FEB  9                1.20          *       0.04
1956 FEB 10                0.88          *       0.04
1956 FEB 11                1.70          *       0.04
1956 FEB 12                1.40          *       0.04
1956 FEB 13                1.20          *       0.04
1956 FEB 14                2.60          *       0.04
1956 FEB 15                6.00          *       0.04
1956 FEB 16                3.50       0.27       0.04
1956 FEB 17               25.00       2.71       0.04
1956 FEB 18               25.00       0.57       0.05
1956 FEB 19                7.40       0.58       0.05
1956 FEB 20                6.40       0.00       0.05
1956 FEB 21                2.60       0.00       0.05
1956 FEB 22                1.70       0.00       0.05
1956 FEB 23                1.10       0.00       0.05
1956 FEB 24                2.70       0.73       0.05
1956 FEB 25                5.00       0.52       0.05
1956 FEB 26                3.10       0.00       0.06
1956 FEB 27                2.40       0.35       0.06
1956 FEB 28                2.10       0.00       0.06
1956 FEB 29                1.70       0.00       0.06
1956 MAR  1                1.30       0.20       0.06
1956 MAR  2                2.00       0.25       0.06
1956 MAR  3                2.80       0.47       0.06
1956 MAR  4                2.70       0.00       0.07
1956 MAR  5                1.90       0.00       0.07
1956 MAR  6                1.50       0.00       0.07
1956 MAR  7                5.40       1.14       0.07
1956 MAR  8                5.40       0.08       0.07
1956 MAR  9                2.80       0.00       0.07
1956 MAR 10                1.90       0.00       0.07
1956 MAR 11                1.50       0.05       0.08
1956 MAR 12                1.70       0.63       0.08
1956 MAR 13                3.20       0.84       0.08
1956 MAR 14               24.00       0.94       0.08
1956 MAR 15                4.80       0.05       0.08
1956 MAR 16                5.90       0.65       0.08
1956 MAR 17                4.00       0.00       0.09
1956 MAR 18                2.80       0.13       0.09
1956 MAR 19                2.80       0.00       0.09
1956 MAR 20                2.50       0.00       0.09
1956 MAR 21                1.50       0.00       0.09
1956 MAR 22                1.40       0.00       0.10
1956 MAR 23                0.88       0.00       0.10
1956 MAR 24                1.30       0.50       0.10
1956 MAR 25                0.88       0.00       0.10
1956 MAR 26                0.88       0.00       0.10
1956 MAR 27                0.78       0.00       0.10
1956 MAR 28                0.73       0.20       0.11
1956 MAR 29                0.78       0.03       0.11
1956 MAR 30                0.60       0.00       0.11
1956 MAR 31                0.52       0.00       0.11
```

Listing of time.lst: (continued, Limits/Screen)

```
          ( * ) is for out-of-range data

-------------------------------------------------------------
Data-set number                6           5           7
Data-set name            3407100        PREC        EVAP
-------------------------------------------------------------
1956 JAN  1             -99999.     -99999.
1956 JAN  2             -99999.     -99999.
1956 JAN  3             -99999.     -99999.
1956 JAN  4             -99999.     -99999.
1956 JAN  5             -99999.     -99999.
1956 JAN  6             -99999.     -99999.
1956 JAN  7             -99999.     -99999.
1956 JAN  8             -99999.     -99999.
1956 JAN  9             -99999.     -99999.
1956 JAN 10             -99999.     -99999.
1956 JAN 11             -99999.     -99999.
1956 JAN 12             -99999.     -99999.
1956 JAN 13             -99999.     -99999.
1956 JAN 14             -99999.     -99999.
1956 JAN 15             -99999.     -99999.
1956 JAN 16             -99999.     -99999.
1956 JAN 17             -99999.     -99999.
1956 JAN 18             -99999.     -99999.
1956 JAN 19             -99999.     -99999.
1956 JAN 20             -99999.     -99999.
1956 JAN 21             -99999.     -99999.
1956 JAN 22             -99999.     -99999.
1956 JAN 23             -99999.     -99999.
1956 JAN 24             -99999.     -99999.
1956 JAN 25             -99999.     -99999.
1956 JAN 26             -99999.     -99999.
1956 JAN 27             -99999.     -99999.
1956 JAN 28             -99999.     -99999.
1956 JAN 29             -99999.     -99999.
1956 JAN 30             -99999.     -99999.
1956 JAN 31             -99999.     -99999.
1956 FEB  1                5.00     -99999.          0.03
1956 FEB  2                         -99999.
1956 FEB  3                         -99999.
1956 FEB  4                         -99999.
1956 FEB  5                         -99999.
1956 FEB  6                         -99999.
1956 FEB  7                         -99999.
1956 FEB  8                         -99999.
1956 FEB  9                         -99999.
1956 FEB 10                         -99999.
1956 FEB 11                         -99999.
1956 FEB 12                         -99999.
1956 FEB 13                         -99999.
1956 FEB 14                         -99999.
1956 FEB 15                         -99999.
1956 FEB 16                              0.27
1956 FEB 17                   25.00
1956 FEB 24                              0.73
1956 FEB 27                              0.35
1956 MAR  1                              0.20
1956 MAR  7                              1.14
1956 MAR 11                              0.05
1956 MAR 14                   24.00
1956 MAR 18                              0.13
1956 MAR 24                              0.50
1956 MAR 28                              0.20
```

DATA TIME SERIES MODIFY

The Modify option is used to edit one or more time-series data values and the associated quality codes in a data set. For data stored without data compression (attribute COMPFG = 2), each time step is recognized as a single value and may be modified.

For data stored with data compression (attribute COMPFG = 1), adjacent time steps with data values within a specified tolerance (attribute TOLR, defaults to 0.0), are compressed and stored in the data set as a single value. This value may be edited, but additional values may not be inserted into the data set. Therefore, the single value for a compressed time period may be modified, but the same value will be used for the entire compressed time period.

The Update option under DATA/TIME SERIES/Copy should be used instead of Modify when (1) the data set to be modified is compressed, COMPFG = 1; (2) the time step to be changed is part of a compressed time period; and (3) the time steps in the compressed period need to be modified to two or more different values.

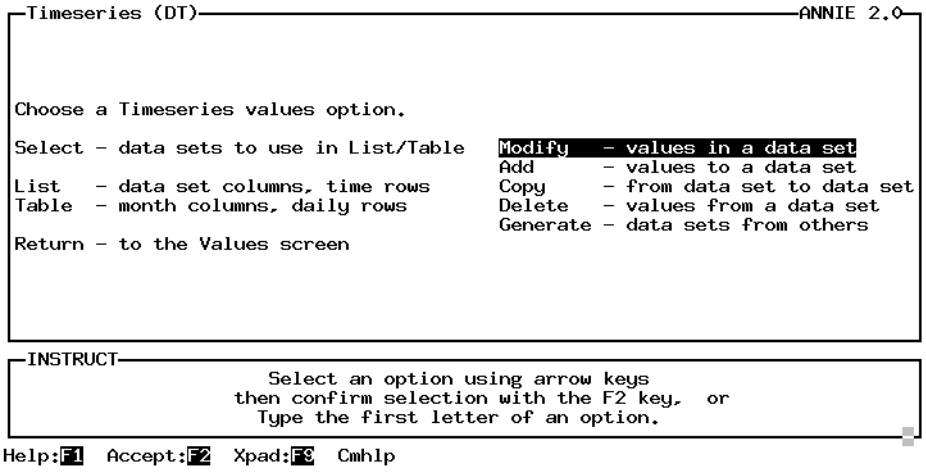
1 Enter the number of the data set to be modified.

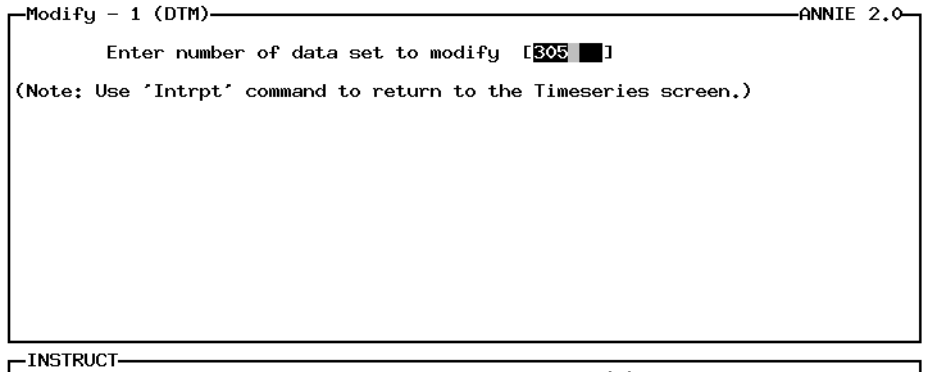
2 Enter the starting date and time of the time period to be modified. For compressed data sets, this may be more than one time step. However, only a single data value may be entered.

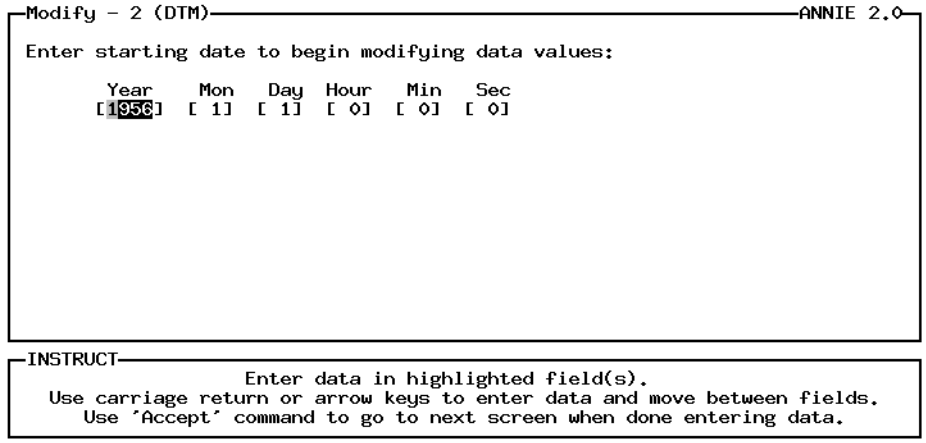
3 Modify the value and quality code to be assigned to the time period. Note that the default value will be the current value in the data set.

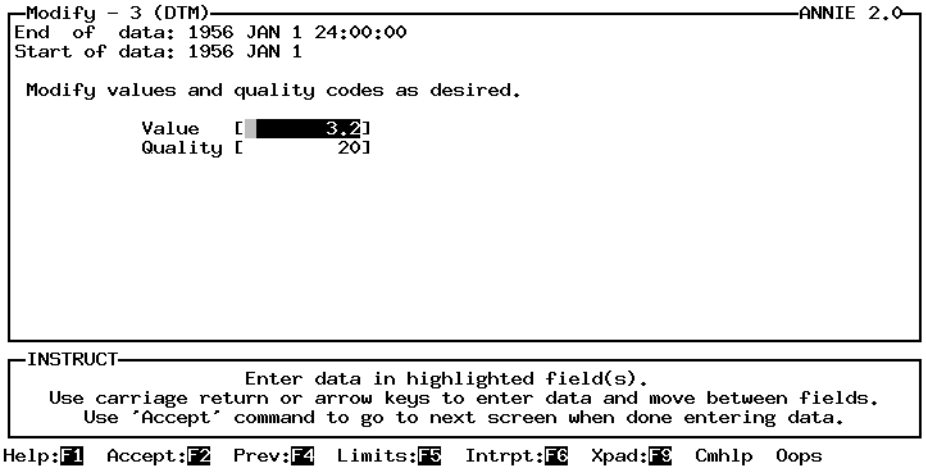
4 Repeat steps 2 and 3 for each time period to be modified. Execute Intrpt (F6) to stop editing data.

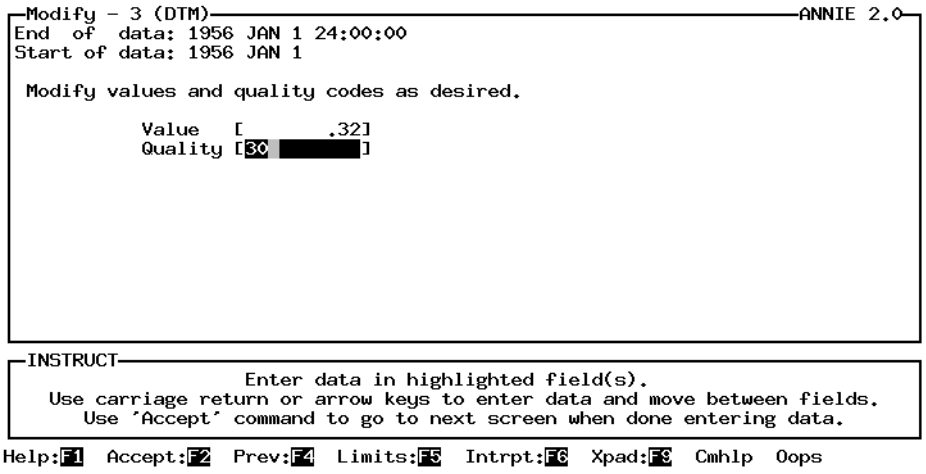
In the example, data values in data-set 305 were edited. This data set contains daily values stored with data compression (attribute COMPFG = 1). Three time periods were edited. The first time period is the single day January 1, 1956; the data value 3.2 was changed to .32, and the quality code was changed from 20 to 30. The second period, January 3, 1956, through February 3, 1956, is a compressed time period of missing record; -99999.0 was changed to 0.0, and the quality code was changed from 20 to 30. (Note, to change this period of record to nonconstant values, Copy/Update must be used.) The third period is the single day February 5, 1956; the value 4.3 was changed to .43, and the quality code was changed from 20 to 30. Finally, the Modify option was exited by executing Intrpt (F6).

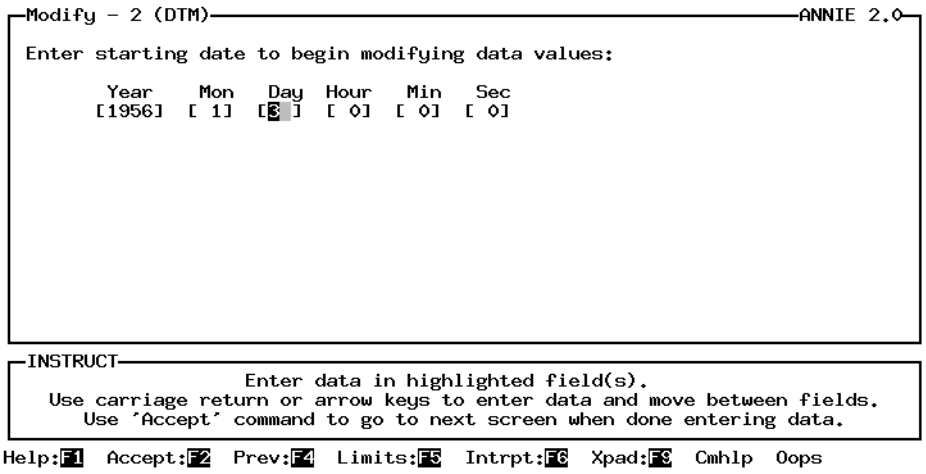

Timeseries (DT)
ANNIE 2.0
Choose a Timeseries values option.
Select - data sets to use in List/Table
List - data set columns, time rows
Table - month columns, daily rows
Return - to the Values screen
Modify - values in a data set
Add - values to a data set
Copy - from data set to data set
Delete - values from a data set
Generate - data sets from others
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp

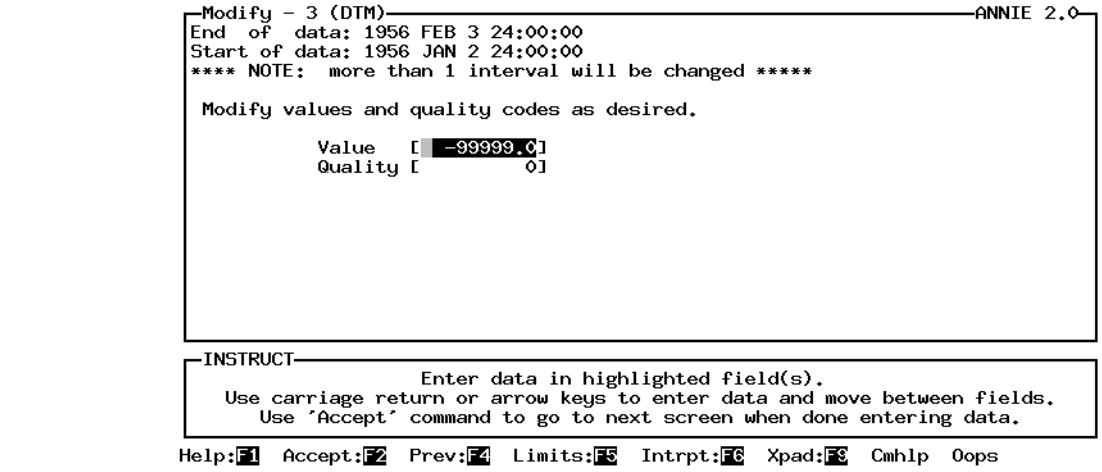

Modify - 1 (DTM)
ANNIE 2.0
Enter number of data set to modify [305]
(Note: Use 'Intrpt' command to return to the Timeseries screen.)
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F3 Cmhlp Oops

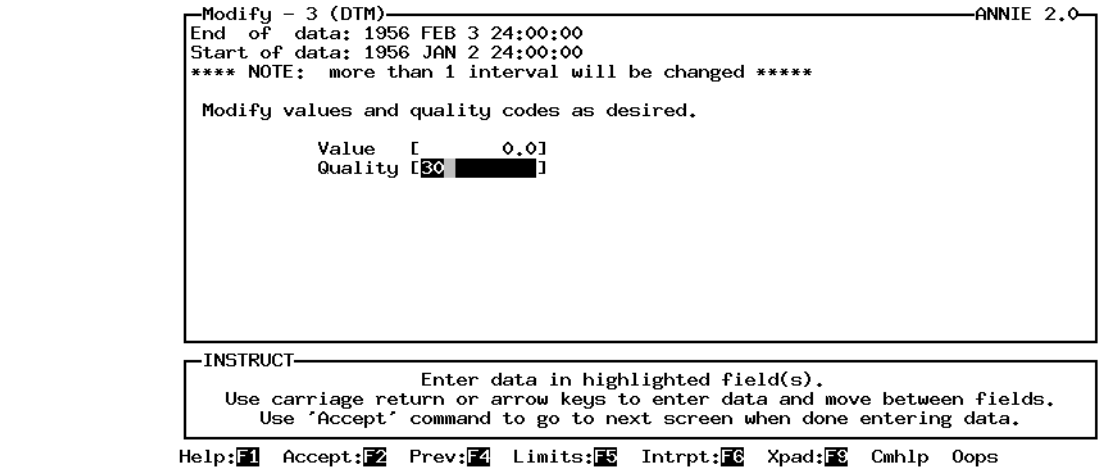

Modify - 2 (DTM)
ANNIE 2.0
Enter starting date to begin modifying data values:
Year Mon Day Hour Min Sec
[1956] [1] [1] [0] [0] [0]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F3 Cmhlp Oops

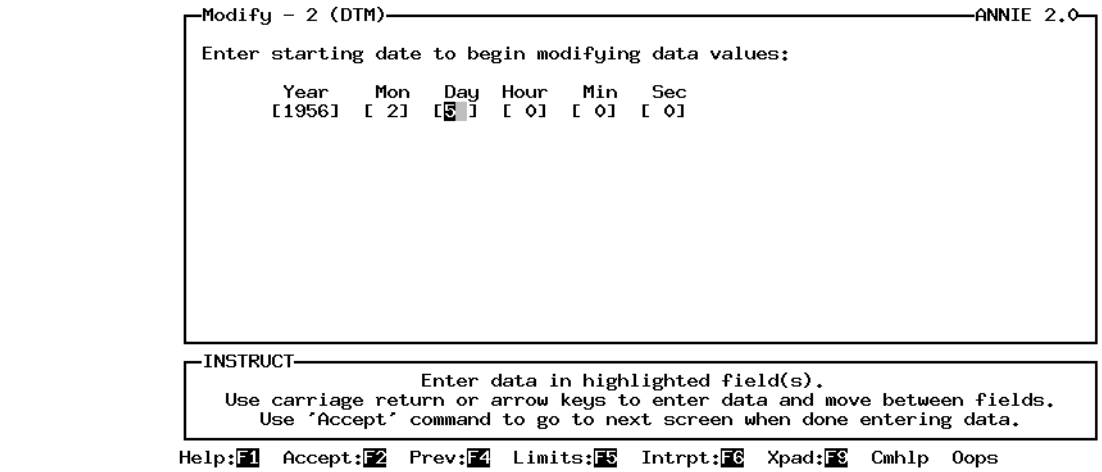

Modify - 3 (DTM)
ANNIE 2.0
End of data: 1956 JAN 1 24:00:00
Start of data: 1956 JAN 1
Modify values and quality codes as desired.
Value [3.2]
Quality [20]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops

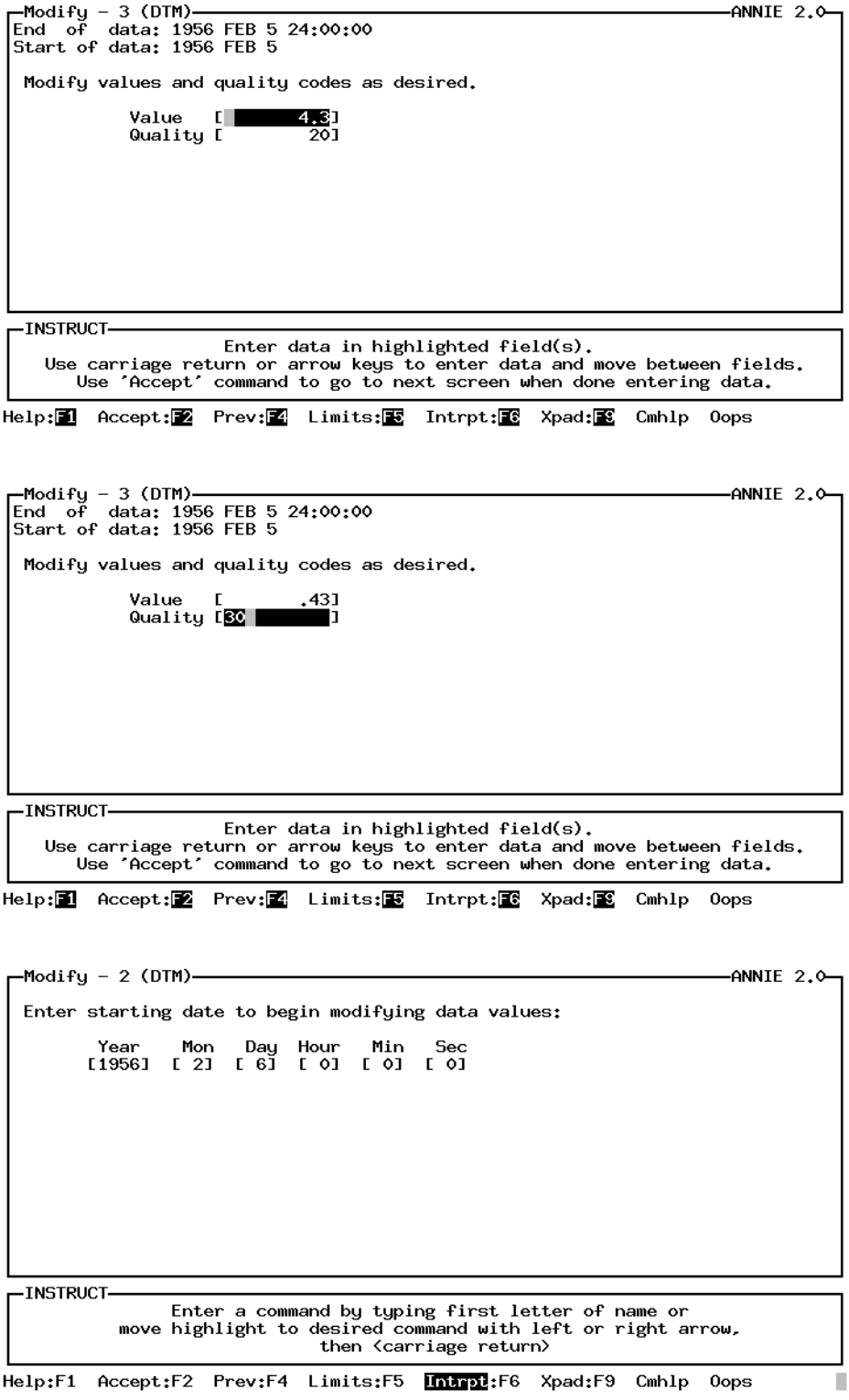

Modify - 3 (DTM)
ANNIE 2.0
End of data: 1956 JAN 1 24:00:00
Start of data: 1956 JAN 1
Modify values and quality codes as desired.
Value [.32]
Quality [30]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops


Modify - 2 (DTM)
ANNIE 2.0
Enter starting date to begin modifying data values:
Year Mon Day Hour Min Sec
[1956] [1] [3] [0] [0] [0]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops


Modify - 3 (DTM)
ANNIE 2.0
End of data: 1956 FEB 3 24:00:00
Start of data: 1956 JAN 2 24:00:00
**** NOTE: more than 1 interval will be changed *****
Modify values and quality codes as desired.
Value [-99999.0]
Quality [0]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops


Modify - 3 (DTM)
ANNIE 2.0
End of data: 1956 FEB 3 24:00:00
Start of data: 1956 JAN 2 24:00:00
**** NOTE: more than 1 interval will be changed *****
Modify values and quality codes as desired.
Value [0.0]
Quality [30]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops


Modify - 2 (DTM)
ANNIE 2.0
Enter starting date to begin modifying data values:
Year Mon Day Hour Min Sec
[1956] [2] [5] [0] [0] [0]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops


Modify - 3 (DTM)
ANNIE 2.0
End of data: 1956 FEB 5 24:00:00
Start of data: 1956 FEB 5
Modify values and quality codes as desired.
Value [4.3]
Quality [20]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops
Modify - 3 (DTM)
ANNIE 2.0
End of data: 1956 FEB 5 24:00:00
Start of data: 1956 FEB 5
Modify values and quality codes as desired.
Value [.43]
Quality [30]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops
Modify - 2 (DTM)
ANNIE 2.0
Enter starting date to begin modifying data values:
Year Mon Day Hour Min Sec
[1956] [2] [6] [0] [0] [0]
INSTRUCT
Enter a command by typing first letter of name or
move highlight to desired command with left or right arrow,
then <carriage return>
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops

DATA TIME SERIES SELECT

The SELECT option is available from the time-series menu. SELECT is used to populate the data-set buffer. The data-set buffer must be populated before the List and Table options are chosen. See the SELECT section for details of populating the data-set buffer. The TIME-SERIES options Modify, Add, Copy, and Delete use a different method of identifying data sets; see the individual descriptions for these options for more information.

DATA TIME SERIES TABLE

The Table option is used to generate a formatted table of daily values data. For each year, the table contains columns of months and rows of days. There are also Total, Mean, Minimum, and Maximum rows for each month. For discharge data sets that include the drainage area attribute, DAREA, and the parameter code attribute, PARMCD = 60, the monthly runoff in inches is included.

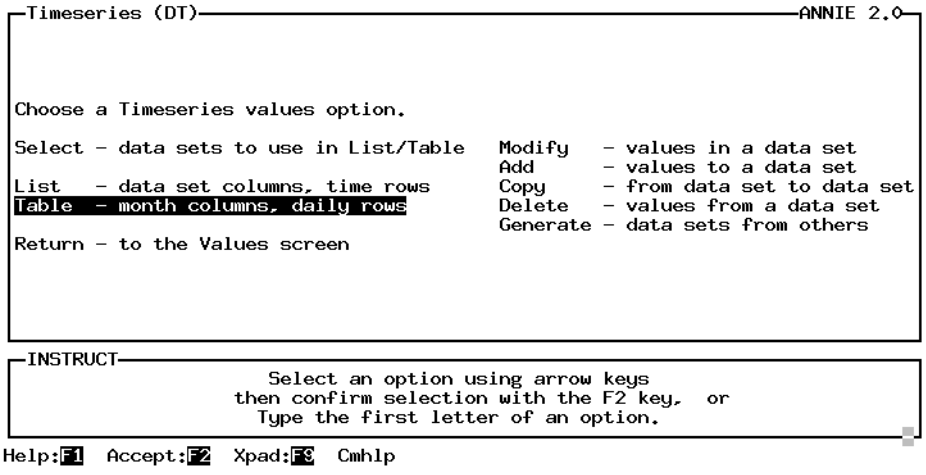
1 Specify the File for the table.

2 (Optional) Specify the Time options. By default, the time series will be tabled by water year, beginning in OCTober and ending in SEPtember. If one time series is being tabled, the entire period of record will be included in the table. If more than one time series is being tabled, the COMMON period of record will be included in the table.

3 (Optional) Define the characteristics of the output table. By default, the data will be tabled with two decimal places and five significant digits. The station name will be used for the table title. If a time transformation is needed, it will be RATE.

4 Select Execute to generate the table(s).

In the example, daily precipitation from data-set 5 and daily discharge from data-set 6 are tabled for the water year 1957. The table is output to the file time.tbl, which is listed following the example. The attributes PARMCD and DAREA are present in data-set 6, so the monthly total runoff in inches is included in the table.



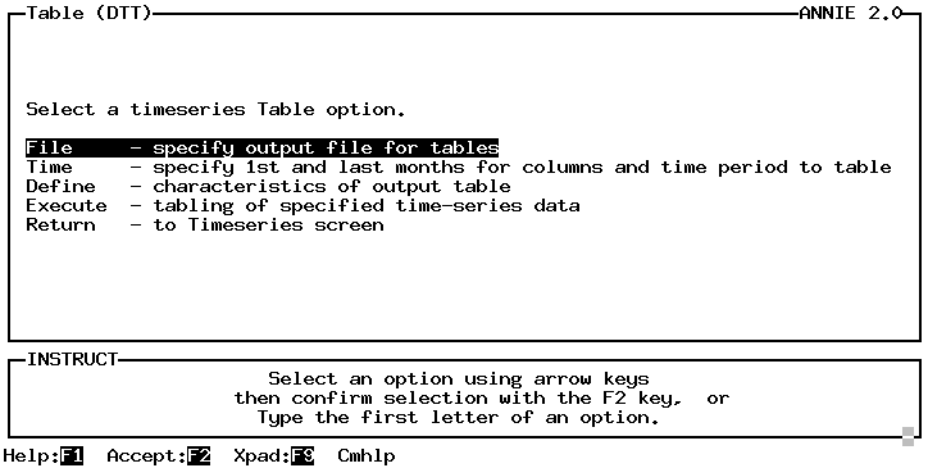
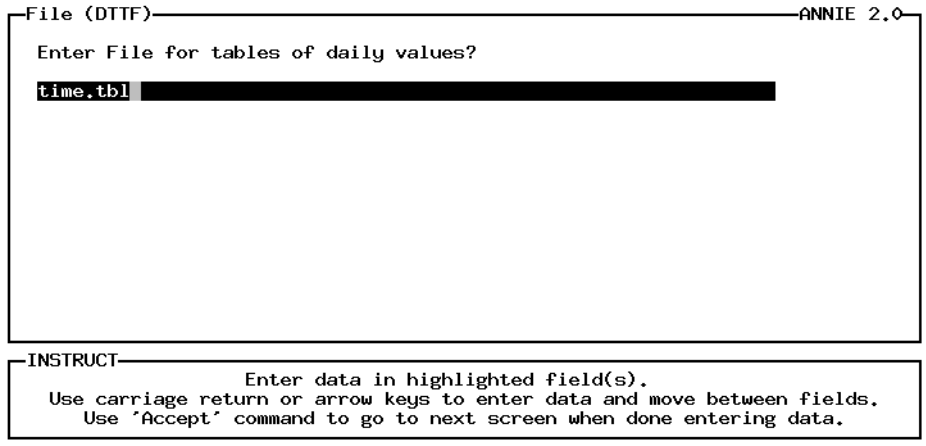


Table (DTT)
ANNIE 2.0
Select a timeseries Table option.
File - specify output file for tables
Time - specify 1st and last months for columns and time period to table
Define - characteristics of output table
Execute - tabling of specified time-series data
Return - to Timeseries screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp


File (DTTF)
ANNIE 2.0
Enter File for tables of daily values?
time.tbl
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F3 Cmhlp Oops

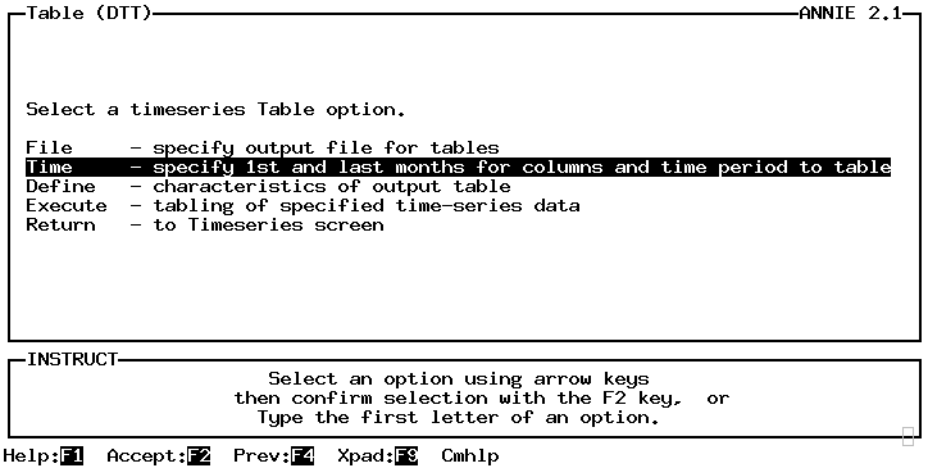
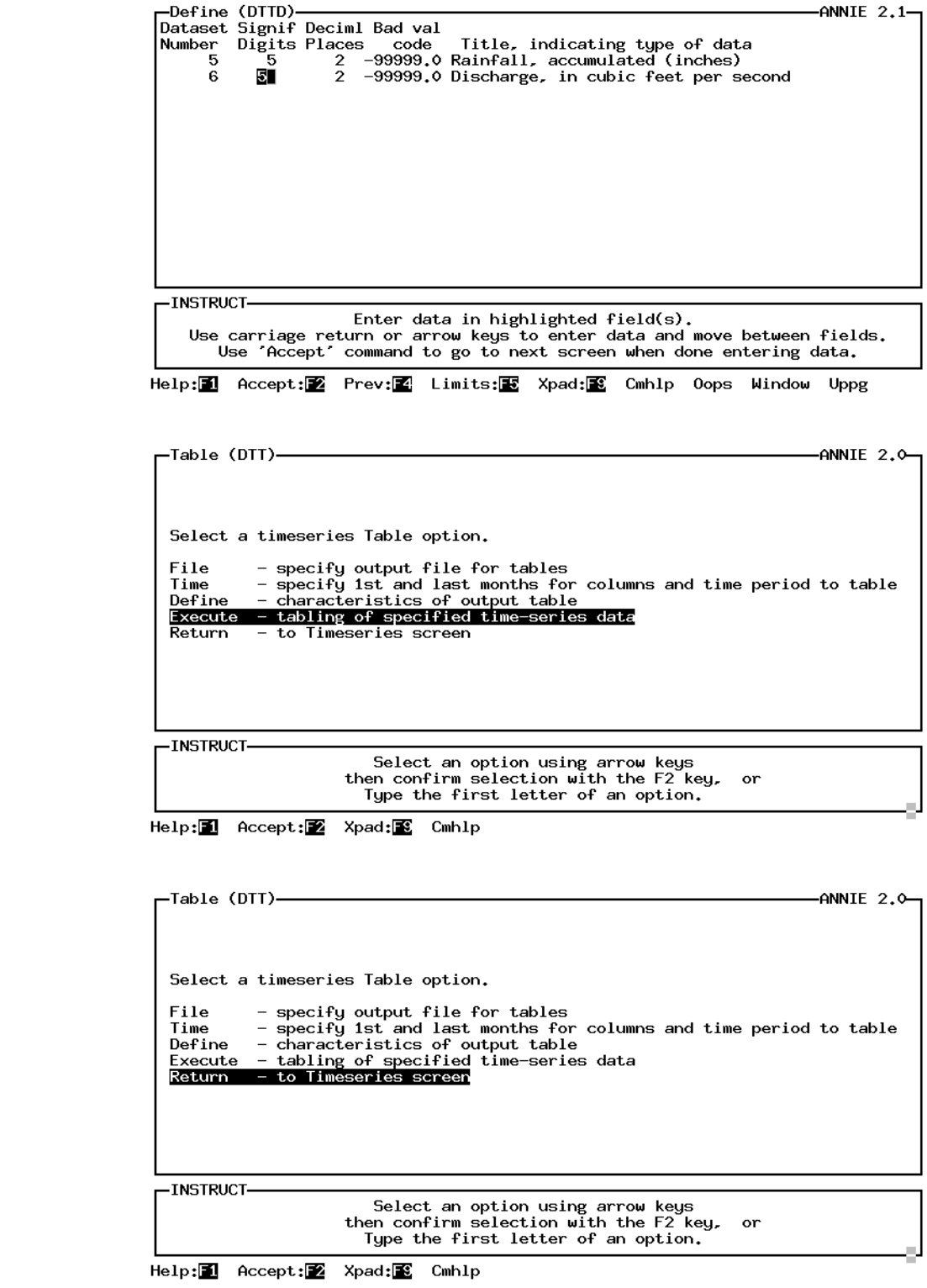


Table (DTT)
ANNIE 2.1
Select a timeseries Table option.
File - specify output file for tables
Time - specify 1st and last months for columns and time period to table
Define - characteristics of output table
Execute - tabling of specified time-series data
Return - to Timeseries screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Prev:F4 Xpad:F3 Cmhlp

```
Time - 1 (DTTT)                                                    ANNIE 2.0

 Specify table characteristics.

   Month for 1st column          OCT
   Month for last column         SEP

   Period of data to table       COMMON

INSTRUCT
                    Enter data in highlighted field(s).
  Use carriage return or arrow keys to enter data and move between fields.
     Use 'Accept' command to go to next screen when done entering data.

Help:F1  Accept:F2  Prev:F4  Limits:F5  Xpad:F9  Cmhlp  Oops
```

```
Time - 2 (DTTT)                                                    ANNIE 2.0
Earliest common starting date for data sets to be tabled:  1956/JAN
 Latest  common  ending  date for data sets to be tabled:  1957/DEC

  Specify the period of data to be tabled:

                Year  Month
   Start date   1956  OCT
   End date     1957  sep

INSTRUCT
                    Enter data in highlighted field(s).
  Use carriage return or arrow keys to enter data and move between fields.
     Use 'Accept' command to go to next screen when done entering data.

Help:F1  Accept:F2  Prev:F4  Limits:F5  Xpad:F9  Cmhlp  Oops
```

```
Table (DTT)                                                        ANNIE 2.0



 Select a timeseries Table option.

 File     - specify output file for tables
 Time     - specify 1st and last months for columns and time period to table
 Define   - characteristics of output table
 Execute  - tabling of specified time-series data
 Return   - to Timeseries screen

INSTRUCT
                      Select an option using arrow keys
                    then confirm selection with the F2 key,  or
                      Type the first letter of an option.

Help:F1  Accept:F2  Xpad:F9  Cmhlp
```


Define (DTTD) ANNIE 2.1
Dataset Signif Deciml Bad val
Number Digits Places code Title, indicating type of data
5 5 2 -99999.0 Rainfall, accumulated (inches)
6 5 2 -99999.0 Discharge, in cubic feet per second
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops Window Uppg
Table (DTT) ANNIE 2.0
Select a timeseries Table option.
File - specify output file for tables
Time - specify 1st and last months for columns and time period to table
Define - characteristics of output table
Execute - tabling of specified time-series data
Return - to Timeseries screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp
Table (DTT) ANNIE 2.0
Select a timeseries Table option.
File - specify output file for tables
Time - specify 1st and last months for columns and time period to table
Define - characteristics of output table
Execute - tabling of specified time-series data
Return - to Timeseries screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp

Listing of output file time.tbl:

Station number 365205084265702
Table of daily values for the 12-month period ending September 1957
Rainfall, accumulated (inches)
Cane Branch, KY--precipitation
Drainage area 0.67

Day	October	November	December	January	February	March	April	May	June	July	August	September
1	0.00	0.00	0.00	0.00	0.67	0.00	0.66	0.00	0.00	0.00	0.00	0.00
2	0.02	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.29	0.00	0.00	0.00
3	0.38	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.13	0.00	0.00	0.00
4	0.30	0.00	0.00	0.90	0.01	0.00	0.75	0.00	0.00	0.00	0.23	0.00
5	0.02	0.00	0.00	0.02	0.62	0.00	0.31	0.00	0.90	0.00	0.00	0.00
6	0.03	0.00	0.00	0.01	0.11	0.56	0.01	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.02	0.02	0.16	0.51	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.24	0.25	0.29	0.02	1.50	0.00	0.39	0.00	0.00	0.00
9	0.00	0.00	0.11	0.76	0.01	0.63	0.00	0.00	0.58	0.25	0.00	0.32
10	0.00	0.00	0.00	0.44	0.39	0.00	0.00	0.11	0.22	0.00	0.00	0.84
11	0.00	0.00	0.25	0.00	0.00	0.01	0.00	0.18	0.17	0.00	0.00	0.00
12	0.00	0.00	2.08	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.02	0.15
13	0.00	0.00	1.98	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.00	2.14
14	0.00	0.00	0.85	0.00	0.00	0.00	0.00	0.80	0.00	0.08	0.33	1.42
15	0.00	0.38	0.00	0.00	0.17	0.11	0.00	0.00	0.15	0.30	0.17	0.06
16	0.00	0.26	0.00	0.00	0.02	0.00	0.41	0.00	0.09	0.00	0.00	0.37
17	0.01	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.09	0.00	0.16	0.11	0.00	0.04	0.00	0.55	0.07	0.33	0.00	0.00
19	0.00	0.00	0.00	0.00	1.21	0.02	0.00	0.80	0.00	0.00	0.00	0.08
20	0.00	0.01	0.26	0.30	0.20	0.00	0.00	0.09	0.00	0.00	0.00	0.07
21	0.13	0.55	1.84	0.13	0.00	0.20	0.13	0.00	0.00	0.00	0.00	0.00
22	0.42	0.00	0.24	1.61	0.00	0.16	0.33	1.15	0.02	0.00	0.00	0.26
23	0.00	0.00	0.41	0.05	0.00	0.00	0.07	0.00	1.10	0.95	0.00	0.01
24	0.00	0.00	0.20	0.00	0.00	0.04	0.09	0.00	0.71	0.04	0.00	0.00
25	0.00	0.02	0.00	0.03	0.00	0.20	0.00	0.00	0.00	0.00	0.18	0.00
26	0.51	0.03	0.00	0.00	0.32	0.13	0.00	0.12	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.71	0.05	0.00	0.00	0.00	0.21	0.00	0.00	0.00
28	0.00	0.04	0.12	1.18	0.49	0.00	0.17	0.00	0.49	0.00	0.00	0.21
29	0.00	0.00	0.00	4.83		0.00	0.00	0.00	0.03	0.00	0.00	0.37
30	0.00	0.00	0.02	0.04		0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	1.16		0.00	0.36		0.00		0.00		0.00	0.00	
Total	3.07	1.29	8.81	11.76	4.73	2.73	4.47	3.80	5.86	1.95	0.93	6.30
Mean	0.10	0.04	0.28	0.38	0.17	0.09	0.15	0.12	0.20	0.06	0.03	0.21
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	1.16	0.55	2.08	4.83	1.21	0.63	1.50	1.15	1.10	0.95	0.33	2.14

Station number 03407100
Table of daily values for the 12-month period ending September 1957
Discharge, in cubic feet per second
Cane Branch, KY--discharge
Drainage area 0.67

Day	October	November	December	January	February	March	April	May	June	July	August	September
1	0.04	0.15	0.04	0.26	8.30	1.80	0.75	0.24	0.06	0.12	0.03	0.01
2	0.04	0.05	0.04	0.20	4.90	1.60	1.10	0.20	0.12	0.10	0.03	0.01
3	0.09	0.05	0.04	0.18	2.80	1.30	1.10	0.16	0.13	0.08	0.03	0.01
4	0.11	0.04	0.04	0.82	1.90	1.10	3.40	0.15	0.10	0.06	0.08	0.01
5	0.04	0.04	0.04	1.70	2.80	0.94	3.50	0.13	0.44	0.06	0.04	0.01
6	0.04	0.04	0.04	1.20	2.70	1.00	2.70	0.12	0.24	0.05	0.03	0.01
7	0.04	0.05	0.04	0.94	2.50	3.10	1.80	0.10	0.12	0.05	0.03	0.01
8	0.03	0.05	0.06	0.78	2.50	4.00	10.00	0.09	0.29	0.05	0.03	0.01
9	0.03	0.05	0.05	5.50	2.70	2.70	4.50	0.09	0.85	0.08	0.03	0.02
10	0.03	0.05	0.04	6.50	3.70	2.60	2.50	0.09	0.55	0.06	0.03	0.38
11	0.04	0.04	0.05	2.60	2.40	2.50	1.70	0.16	0.33	0.05	0.03	0.03
12	0.04	0.04	1.30	1.70	1.90	2.00	1.20	0.09	0.26	0.05	0.03	0.05
13	0.04	0.04	7.30	1.20	1.50	1.60	0.94	0.06	0.23	0.05	0.03	1.20
14	0.04	0.03	6.60	0.88	1.10	1.30	0.78	0.37	0.18	0.06	0.03	1.90
15	0.04	0.04	1.50	0.78	0.88	1.20	0.64	0.16	0.15	0.13	0.07	0.42
16	0.04	0.19	0.68	0.60	0.83	0.94	0.88	0.09	0.13	0.06	0.03	0.34
17	0.04	0.04	0.42	0.49	0.68	0.83	0.64	0.08	0.13	0.05	0.03	0.22
18	0.06	0.04	0.43	0.42	0.64	0.78	0.52	0.36	0.10	0.16	0.03	0.16
19	0.05	0.03	0.31	0.39	3.00	0.68	0.45	0.82	0.10	0.06	0.03	0.13
20	0.05	0.03	0.38	0.48	3.50	0.60	0.42	0.30	0.09	0.04	0.02	0.15
21	0.05	0.21	4.90	0.94	2.40	0.56	0.55	0.16	0.08	0.04	0.02	0.12
22	0.19	0.06	12.00	11.00	2.00	0.72	0.81	1.80	0.06	0.04	0.01	0.17
23	0.09	0.04	5.10	8.50	1.70	0.56	0.68	0.83	0.66	0.37	0.01	0.10
24	0.08	0.04	2.50	2.90	1.50	0.49	0.68	0.40	0.75	0.08	0.01	0.09
25	0.09	0.04	1.40	1.90	1.20	0.66	0.56	0.24	0.79	0.04	0.02	0.08
26	0.19	0.04	0.94	1.30	1.40	0.56	0.49	0.15	0.28	0.04	0.02	0.08
27	0.06	0.04	0.68	2.20	1.10	0.56	0.42	0.10	0.31	0.04	0.01	0.08
28	0.06	0.04	0.56	12.00	1.70	0.49	0.48	0.10	0.48	0.04	0.01	0.09
29	0.06	0.04	0.49	84.00		0.49	0.36	0.10	0.32	0.04	0.01	0.29
30	0.05	0.04	0.36	6.10		0.49	0.28	0.09	0.18	0.04	0.01	0.12
31	0.44		0.31	3.70		0.45		0.09		0.04	0.01	
Total	2.29	1.68	48.64	162.16	64.23	38.60	44.83	7.92	8.51	2.23	0.83	6.30
Mean	0.07	0.06	1.57	5.23	2.29	1.25	1.49	0.26	0.28	0.07	0.03	0.21
Minimum	0.03	0.03	0.04	0.18	0.64	0.45	0.28	0.06	0.06	0.04	0.01	0.01
Maximum	0.44	0.21	12.00	84.00	8.30	4.00	10.00	1.80	0.85	0.37	0.08	1.90
Inches	0.13	0.09	2.70	9.00	3.57	2.14	2.49	0.44	0.47	0.12	0.05	0.35

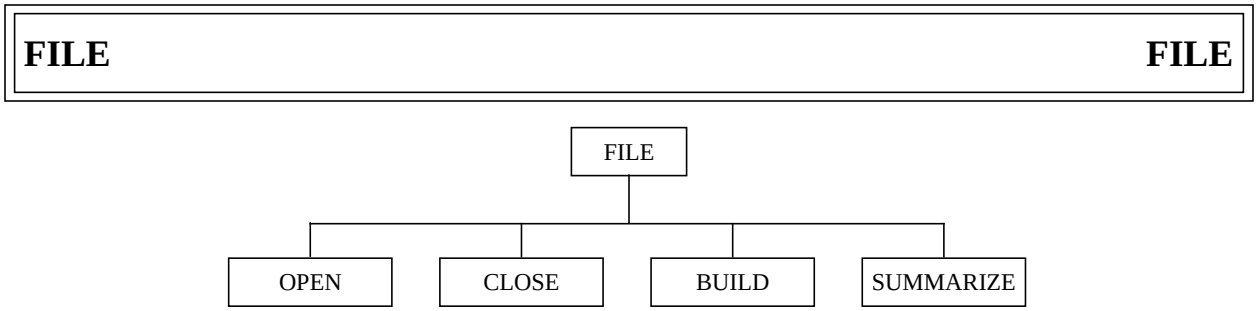


Figure 6. ANNIE/FILE option tree.

The FILE option is used to identify the WDM file to be used by the program. The ARCHIVE, DATA, and GRAPHICS options all require that a WDM file be opened. A new WDM file can be created and opened by selecting the BUILD option. An existing WDM file can be opened by selecting OPEN. ANNIE only works with one WDM file open at a time; therefore, the CLOSE option is used to close the open WDM file so that a different WDM file can be opened. The SUMMARIZE option provides a very brief summary of the number and types of data sets in the WDM file currently open.

The only input required for the BUILD, CLOSE, and OPEN options is the name of the WDM file. Any file name that is valid on the computer being used is acceptable with the restriction that the file name be 64 characters or less. It is recommended that all WDM files be named with the suffix .WDM or .wdm, making the files readily recognizable.

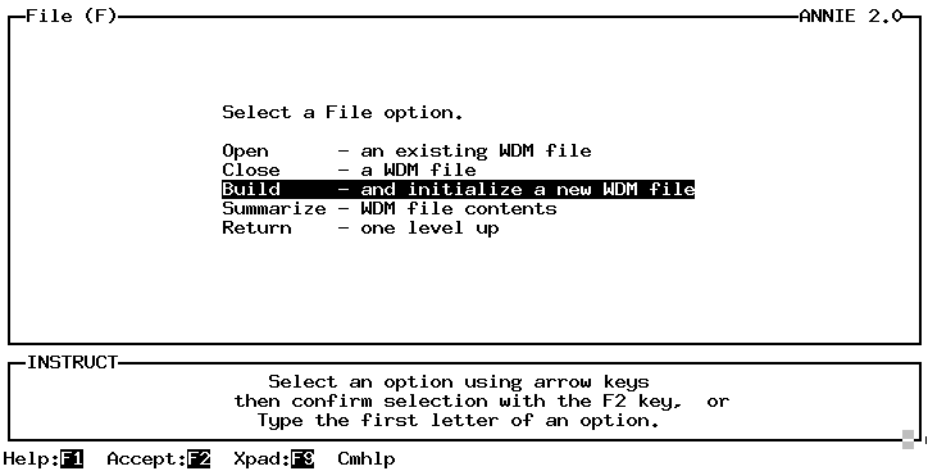
The BUILD and SUMMARIZE options have been documented on the following pages. The CLOSE and OPEN options are not shown. For the BUILD, CLOSE, and OPEN options, the only input is the file name. If the name entered (1) is invalid, (2) already exists (BUILD option), (3) is not open (CLOSE option), or (4) does not exist (OPEN option), the program will issue an error message and give the user the option of reentering the name or RETURNing to the FILE menu. Error messages under FILE may contain a return code; this is the IOSTAT variable from the Fortran open. IOSTAT is system specific.

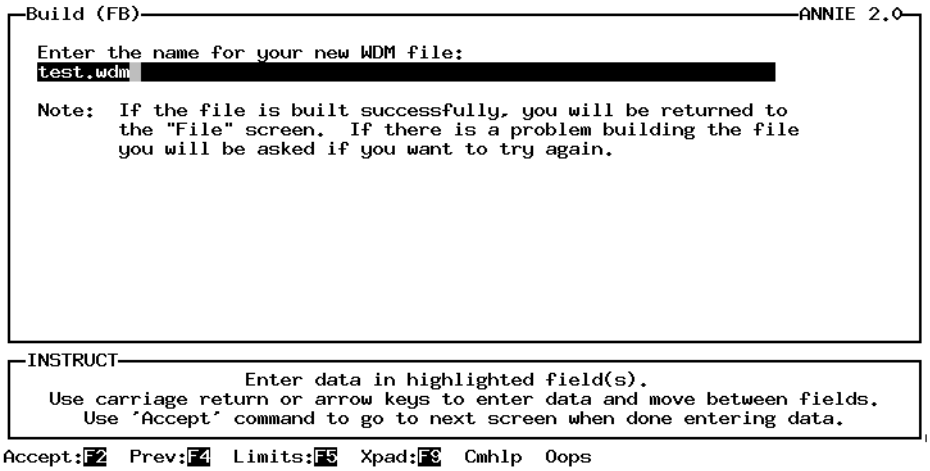
FILE BUILD

The BUILD option is used to create a new WDM file. Once created, the WDM file will automatically be enlarged as its original space allocation is filled. Hence, you are not expected to understand or specify data storage requirements. There are no restrictions on WDM file names. Any name that is valid on the computer being used is acceptable. However, the suffix .WDM or .wdm is suggested to make the files easy to identify by all users.

1 Enter the name to be used for your WDM file.

As indicated by the example, the only input needed to build a WDM file is the file name. Once the WDM file has been built, it is ready for use. If the requested file already exists, it will not be opened and the user will be given the choice of entering a different file name or returning to the FILE menu.



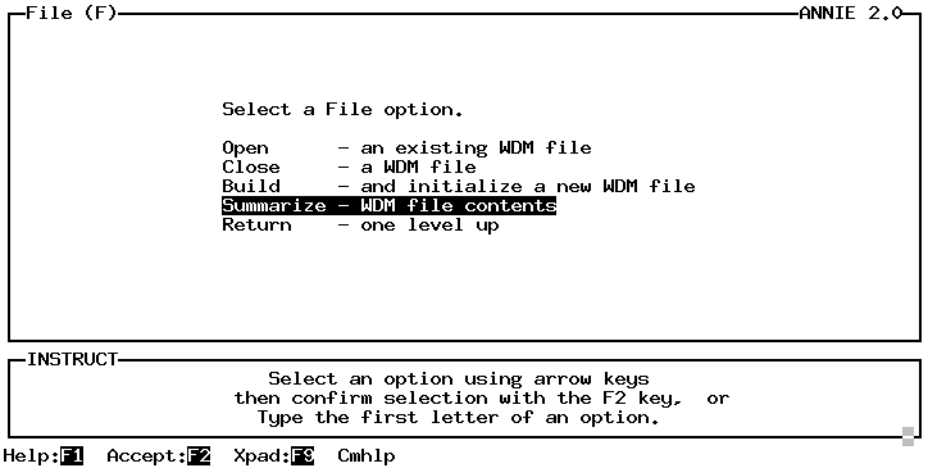


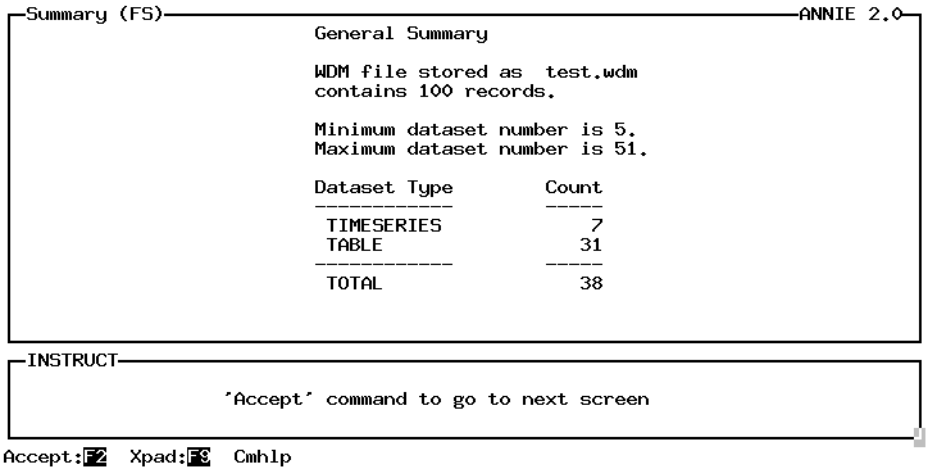
FILE SUMMARIZE

The SUMMARIZE option is used to view very general information about a WDM file. This information includes the name of the file, the size of the file in records, the minimum and maximum data-set numbers in the file, a count of each type of data set, and the total number of data sets. For more details on the actual contents of the data sets in a WDM file, see the DATA/ATTRIBUTES/View option.

There are no steps under SUMMARIZE. The only requirement is that a WDM file be open.

The example illustrates the summary information provided for a file named test.wdm, which contains 100 records. There are 7 time-series data sets and 31 table data sets in the file. The data-set numbers range from 5 to 51.





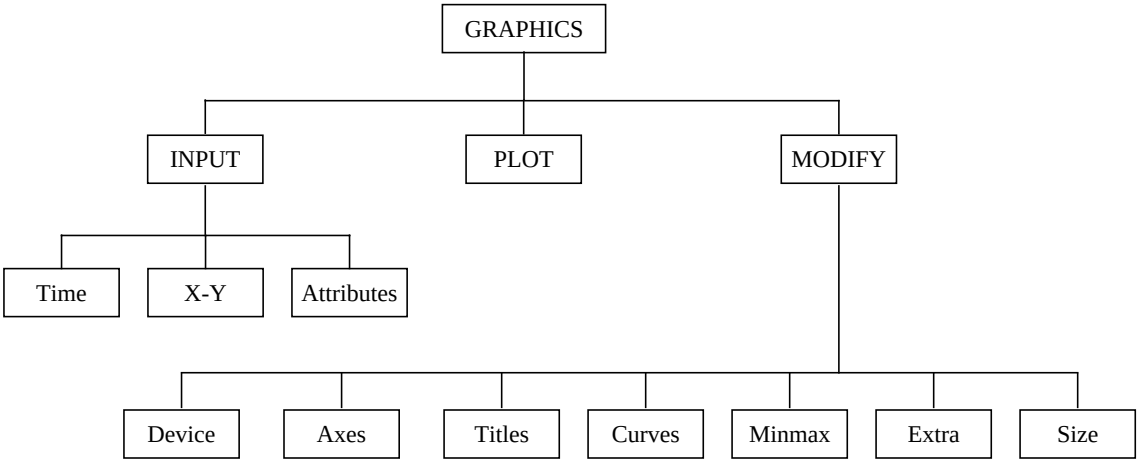


Figure 7. ANNIE/GRAPHICS option tree.

The GRAPHICS option includes three types of plots—Time plot, X-Y plot of time-series data, and x-y plot of Attributes data. The data to be plotted must come from a WDM file. The INPUT option is used to identify the type of plot and the data to be used. The PLOT option is used to generate the plot. The program will calculate defaults for minimum and maximum values and tic intervals for the axes and for line types, symbols, and colors. The optional MODIFY option may be used to refine the plot defaults and customize the plot. The total number of curves and data points that can be drawn and the characteristics of the curves are dependent on the computer system and the graphics implementation; this information is summarized in table 3. The supported graphics devices also depend on the implementation; see the documentation that accompanies the program for details.

Table 3. Summary of limiting factors for graphics features

Feature	Range	Limiting factors
curve specific		
color choices	>= 16	graphics implementation
line types	>= 4	graphics implementation
symbol types	>= 8	graphics implementation
fill patterns	>= 4	graphics implementation
attribute plot		
number of curves	1 - 5	program
number of data sets	1 - 300	program and computer memory limitations
total points	>= 3000	program and computer memory limitations
time plot		
number of curves	1 - 8	program
number of data sets	1 - 8	program
total points	>= 60000	program and computer memory limitations
x-y plot		
number of curves	1 - 8	program
number of data sets	2 - 16	program
total points	>= 60000	program and computer memory limitations
graphics device	>= 1	graphics implementation

The data sets to be used for the Time plots and the X-Y plots of time-series data are identified by number. The SELECT option is used to identify the data sets to be included in an x-y plot of Attributes data. See the section on SELECT for examples of selecting data sets; the SELECT menus will not be included in the Attribute example.

The GRAPHICS documentation that follows consists of two parts. The first part contains examples for creating Attributes, Time, and X-Y plots. The second part contains the more detailed descriptions of the INPUT and MODIFY options and suboptions. The PLOT option generates the graph defined under the INPUT and MODIFY options. A description of PLOT is not included; however, examples are included in the Attributes, Time, and X-Y plot examples. In the examples, generally only the modified version of a screen will be shown; the initial screen containing the original values will not be included.

GRAPHICS

WDM data-set attributes of type real or integer may be used to create a plot. See Appendix A for a list of attributes and their types. See table 3 for limitations on the number of data sets and the number of curves that can be included. Simple arithmetic may be used to combine attributes. The data may be drawn using the scaling and labeling defaults determined by the program and (or) the plot may be refined and customized by selecting the options under MODIFY. Arithmetic or logarithmic scales may be used for the axes. Data may be plotted against both the left and right y axes. The characteristics of both the plotting field and the curves may be changed and additional text may be added to the plot. See the GRAPHICS/MODIFY section for more details on modifying the final plot. See the GRAPHICS/INPUT section for more details on identifying the plot type and selecting the attributes.

The Attributes plot may be useful for exploring relationships between different attributes and for identifying outliers in the data. A rough overlay of station locations can be drawn by plotting latitudes and longitudes. (Adjust the lengths and scales of the x and y axes and reverse the minimum and maximum longitudes for the western hemisphere.)

1 Select INPUT to identify the type of plot, the data sets, and the attributes.

A. Select ATTRIBUTES for an x-y plot of attributes.

B. Use the ADD, BROWSE, FIND, or (and) INPUT options of SELECT to identify the data sets to be included. See the section on SELECT for details.

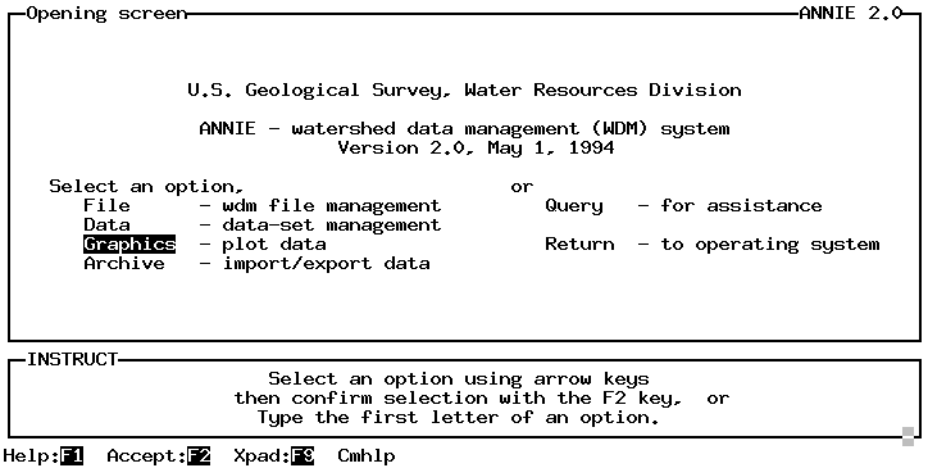
C. Identify the attributes to be included in the plot. One to five curves may be drawn on a single plot. Two attributes may be combined using simple addition, subtraction, division, or multiplication.

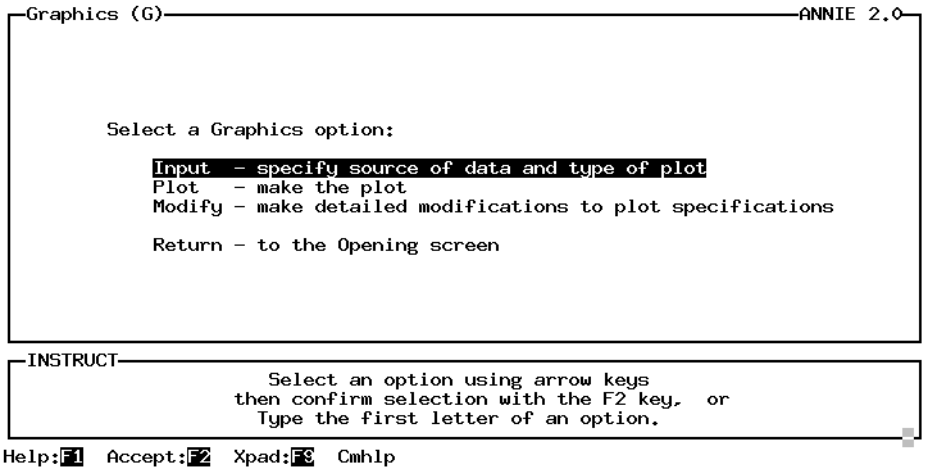
2 (Optional) Select MODIFY to refine or customize the plotting specifications.

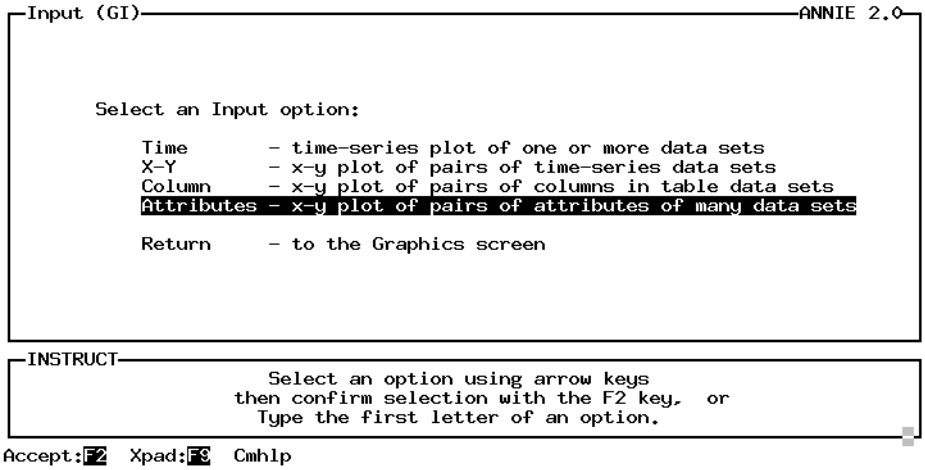
3 Select PLOT to generate the plot.

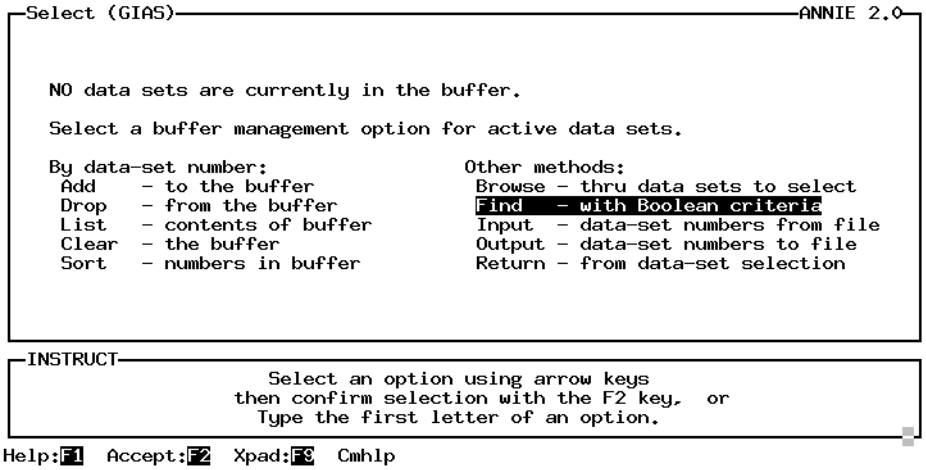
4 Repeat steps 2 and 3 as needed to generate the desired finished plot. Repeat steps 1, 2, and 3 for a new plot.

In the example, data sets numbered from 101 to 131 were selected. The 100-year peak flow, attribute P100., was plotted against the basin drainage area, attribute DAREA. The curve was first drawn using the default plotting specifications. By default, the attribute names were used for the axis names, there was no title for the plot, the axis scales were based on the range of the data values, and the curve was drawn using the circle symbol, O, and with no line connecting the data points. After the plot had been viewed, several modifications were made to the plotting specifications. These included changing the Axes types from arithmetic to log and entering Titles for the plot and axes. The screen for Min/max was checked but no changes were made. The data were then plotted again using the modified plotting specifications.

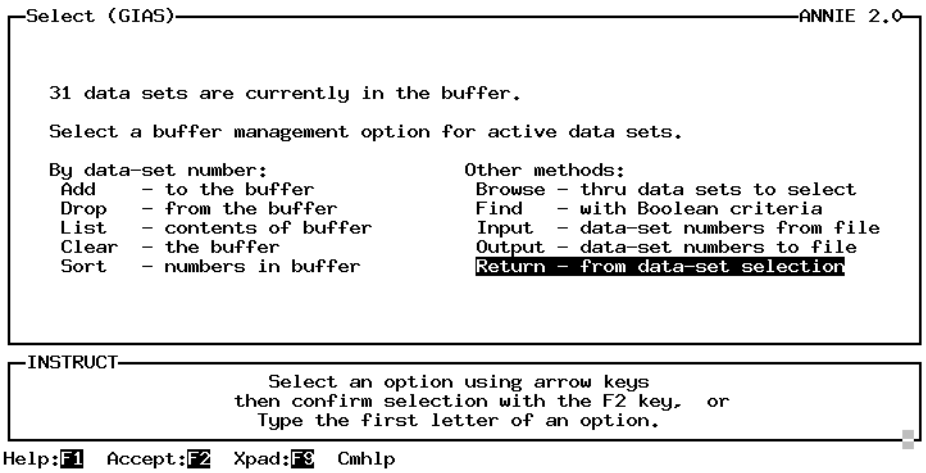

Opening screen
ANNIE 2.0
U.S. Geological Survey, Water Resources Division
ANNIE - watershed data management (WDM) system
Version 2.0, May 1, 1994
Select an option,
File - wdm file management
Data - data-set management
Graphics - plot data
Archive - import/export data
or
Query - for assistance
Return - to operating system
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp

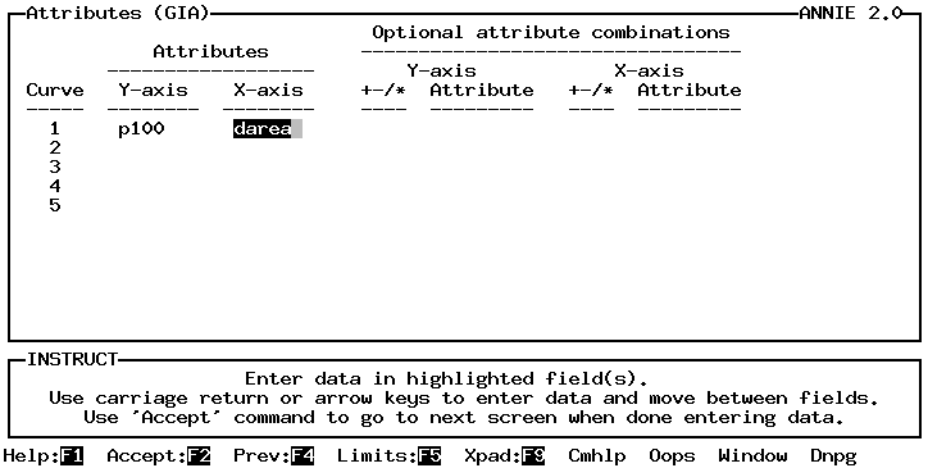

Graphics (G)
ANNIE 2.0
Select a Graphics option:
Input - specify source of data and type of plot
Plot - make the plot
Modify - make detailed modifications to plot specifications
Return - to the Opening screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp

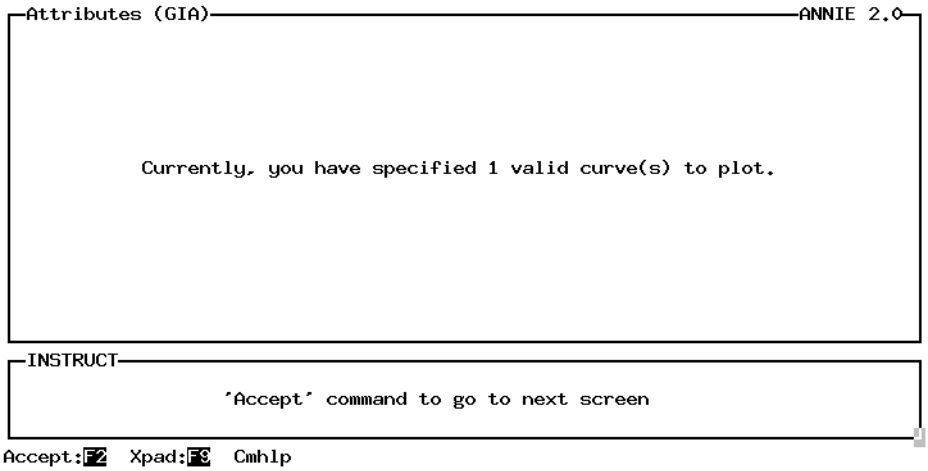

Input (GI)
ANNIE 2.0
Select an Input option:
Time - time-series plot of one or more data sets
X-Y - x-y plot of pairs of time-series data sets
Column - x-y plot of pairs of columns in table data sets
Attributes - x-y plot of pairs of attributes of many data sets
Return - to the Graphics screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Xpad:F9 Cmhlp

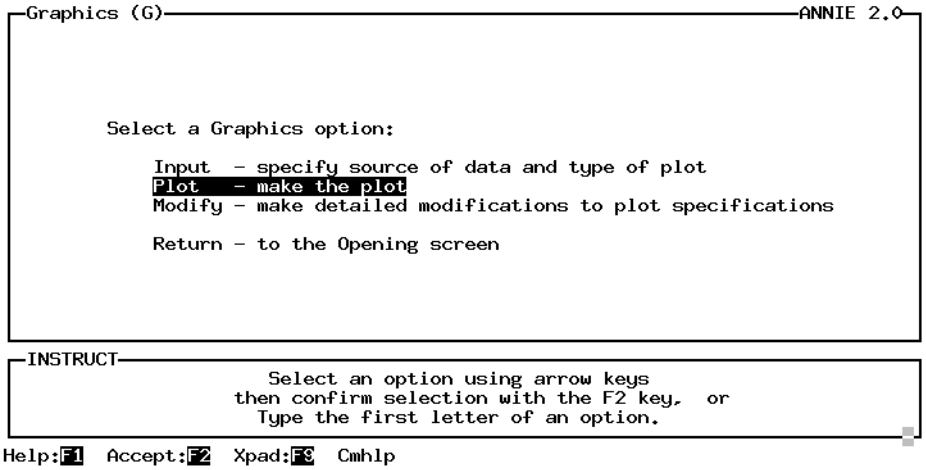


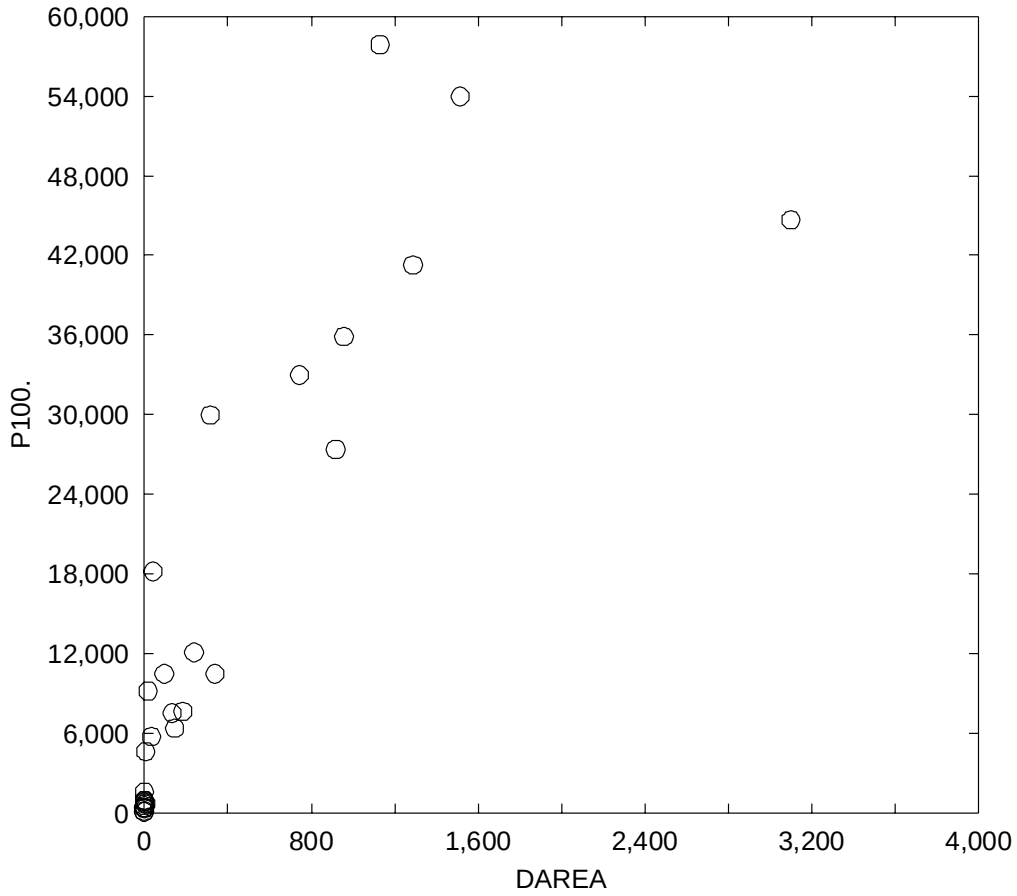
Note: Screens showing SELECTion of data-sets 101-131 have been omitted. The ADD, BROWSE, FIND, and INPUT options under SELECT may be used to place the data-set numbers into the data-set buffer. See the SELECT section for descriptions of these options.

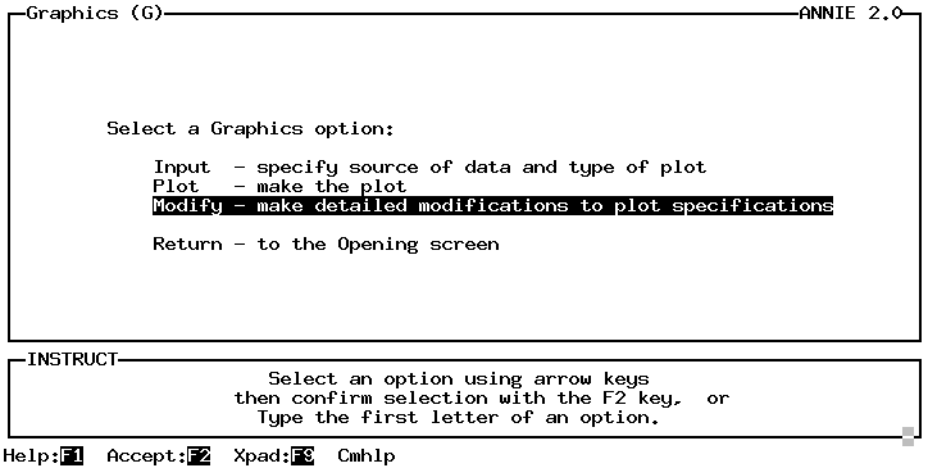


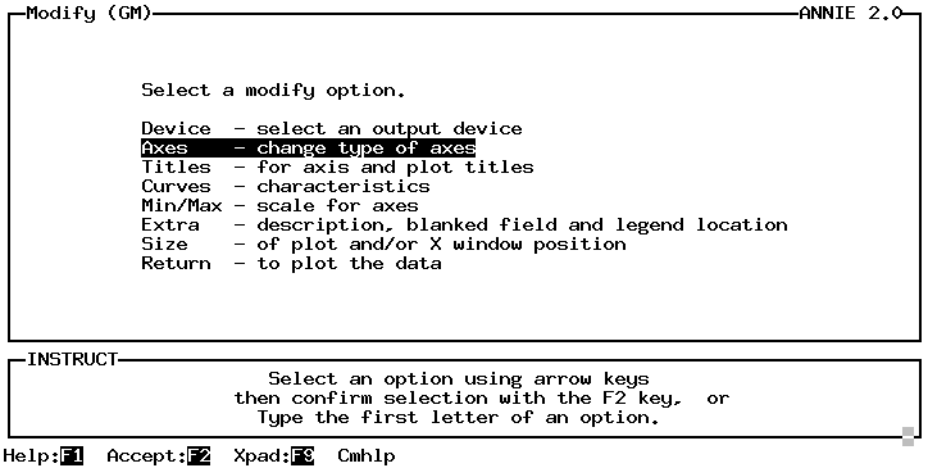

Attributes (GIA)
ANNIE 2.0
Optional attribute combinations
Attributes
Y-axis
X-axis
Curve
Y-axis
X-axis
+-/*
Attribute
+-/*
Attribute
1
p100
darea
2
3
4
5
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops Window Dnpg

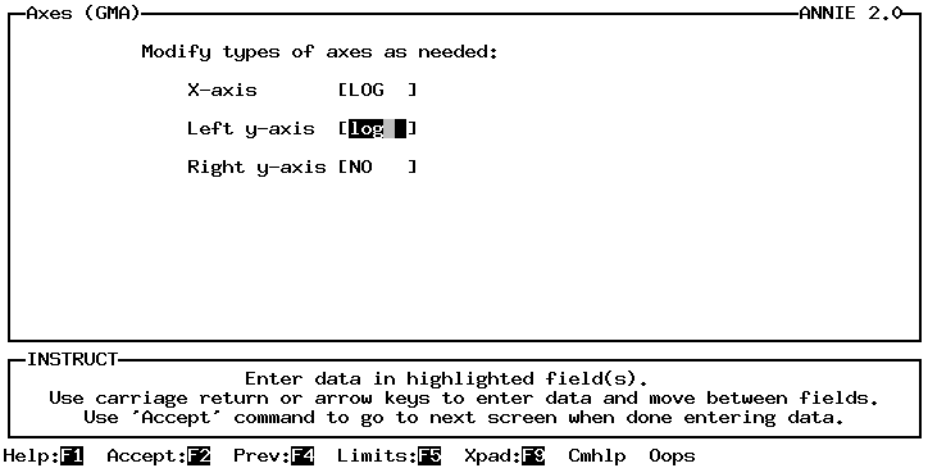

Attributes (GIA)
ANNIE 2.0
Currently, you have specified 1 valid curve(s) to plot.
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Xpad:F9 Cmhlp

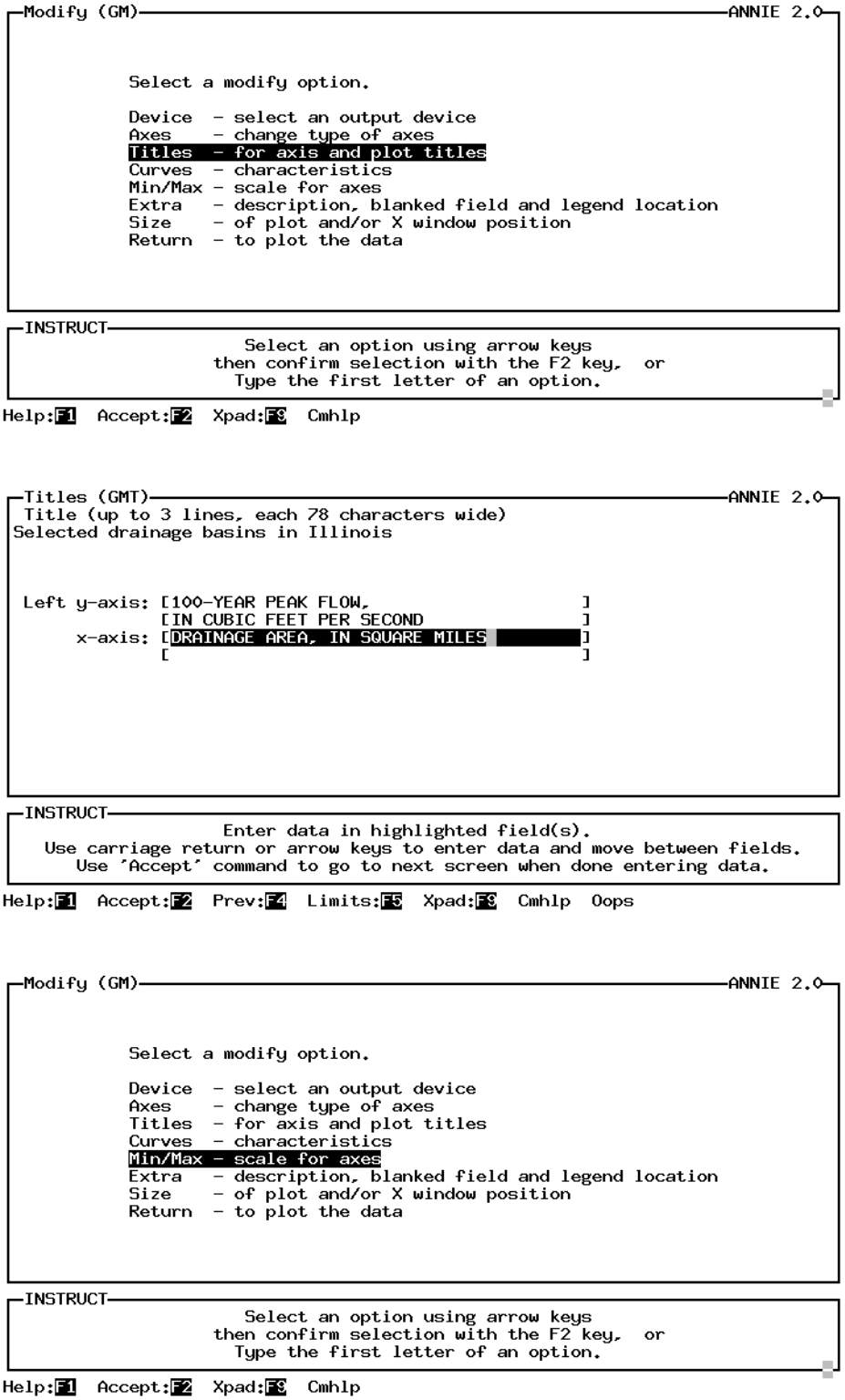

Graphics (G)
ANNIE 2.0
Select a Graphics option:
Input - specify source of data and type of plot
Plot - make the plot
Modify - make detailed modifications to plot specifications
Return - to the Opening screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp

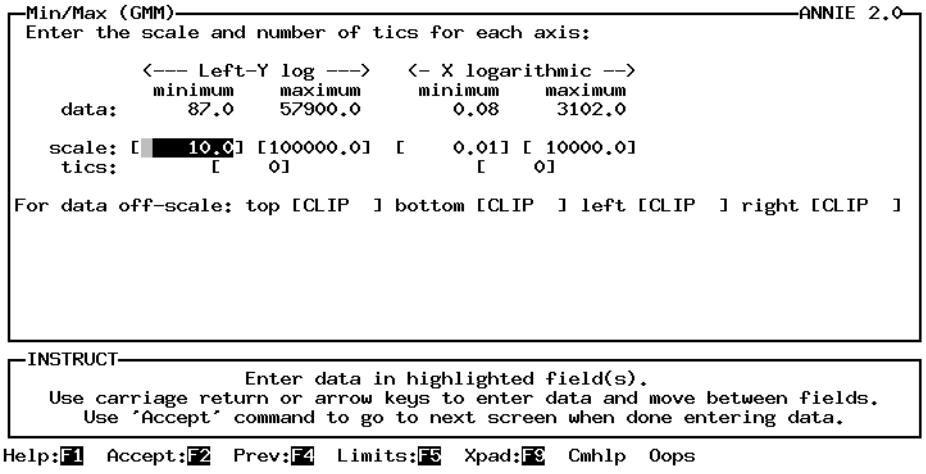

60,000
54,000
48,000
42,000
36,000
30,000
24,000
18,000
12,000
6,000
0
P100.
0
800
1,600
2,400
3,200
4,000
DAREA

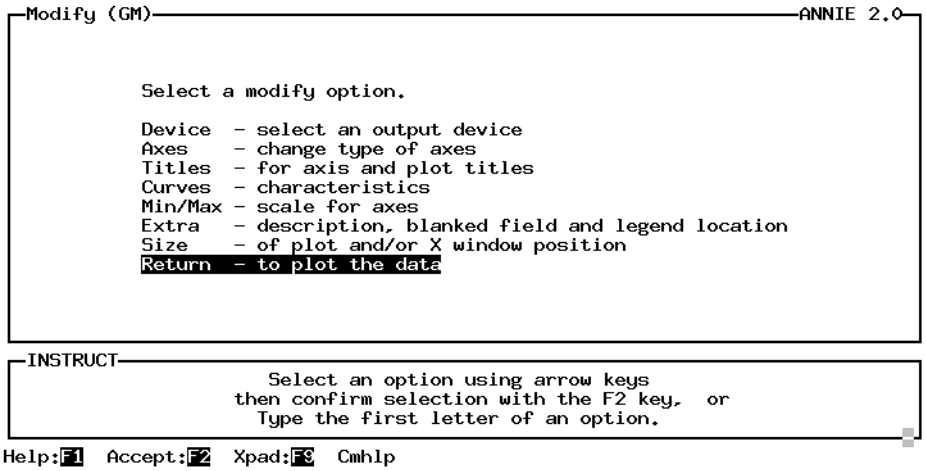

Graphics (G)
ANNIE 2.0
Select a Graphics option:
Input - specify source of data and type of plot
Plot - make the plot
Modify - make detailed modifications to plot specifications
Return - to the Opening screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp

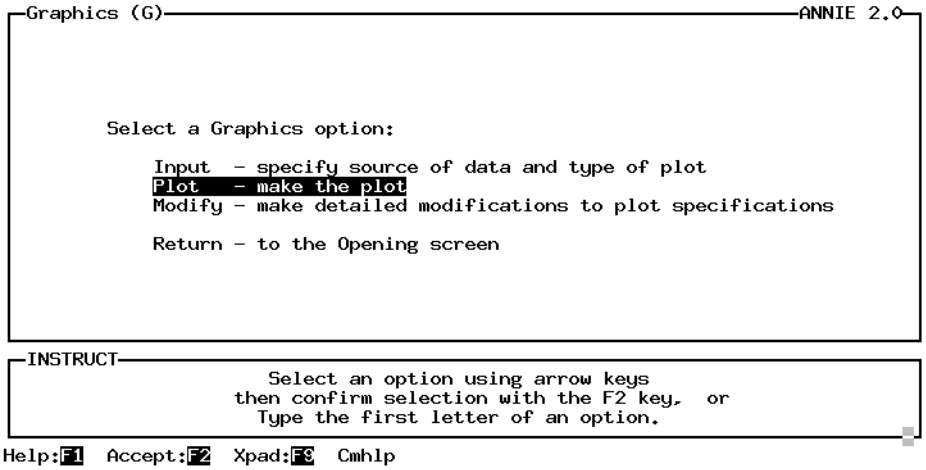

Modify (GM)
ANNIE 2.0
Select a modify option.
Device - select an output device
Axes - change type of axes
Titles - for axis and plot titles
Curves - characteristics
Min/Max - scale for axes
Extra - description, blanked field and legend location
Size - of plot and/or X window position
Return - to plot the data
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp

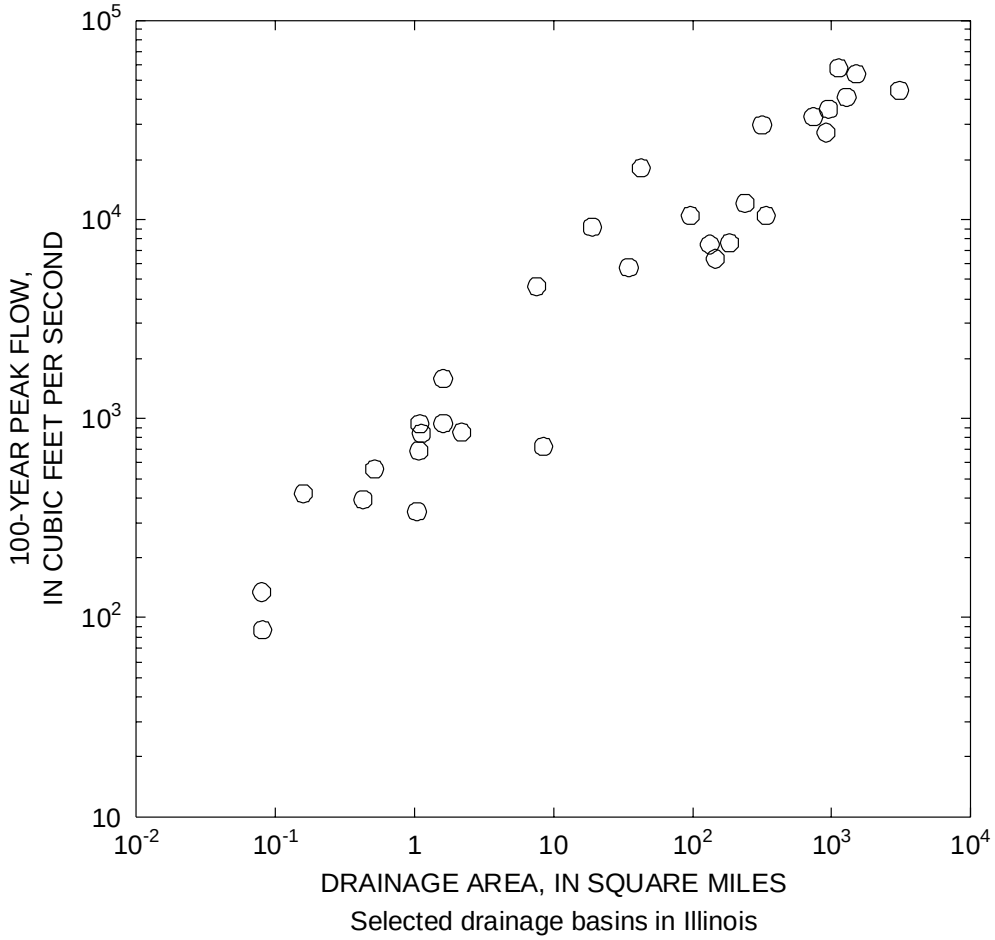

Axes (GMA)
ANNIE 2.0
Modify types of axes as needed:
X-axis [LOG]
Left y-axis [Log]
Right y-axis [NO]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F3 Cmhlp Oops


Modify (GM)
ANNIE 2.0
Select a modify option.
Device - select an output device
Axes - change type of axes
Titles - for axis and plot titles
Curves - characteristics
Min/Max - scale for axes
Extra - description, blanked field and legend location
Size - of plot and/or X window position
Return - to plot the data
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp
Titles (GMT)
ANNIE 2.0
Title (up to 3 lines, each 78 characters wide)
Selected drainage basins in Illinois
Left y-axis: [100-YEAR PEAK FLOW,
[IN CUBIC FEET PER SECOND
x-axis: [DRAINAGE AREA, IN SQUARE MILES
[
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F3 Cmhlp Oops
Modify (GM)
ANNIE 2.0
Select a modify option.
Device - select an output device
Axes - change type of axes
Titles - for axis and plot titles
Curves - characteristics
Min/Max - scale for axes
Extra - description, blanked field and legend location
Size - of plot and/or X window position
Return - to plot the data
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp


Min/Max (GMM)
ANNIE 2.0
Enter the scale and number of tics for each axis:
<--- Left-Y log --->
<- X logarithmic -->
minimum
maximum
minimum
maximum
data: 87.0 57900.0 0.08 3102.0
scale: [10.0] [100000.0] [0.01] [10000.0]
tics: [0] [0]
For data off-scale: top [CLIP] bottom [CLIP] left [CLIP] right [CLIP]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops


Modify (GM)
ANNIE 2.0
Select a modify option.
Device - select an output device
Axes - change type of axes
Titles - for axis and plot titles
Curves - characteristics
Min/Max - scale for axes
Extra - description, blanked field and legend location
Size - of plot and/or X window position
Return - to plot the data
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp


Graphics (G)
ANNIE 2.0
Select a Graphics option:
Input - specify source of data and type of plot
Plot - make the plot
Modify - make detailed modifications to plot specifications
Return - to the Opening screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp


100-YEAR PEAK FLOW,
IN CUBIC FEET PER SECOND
10^5
10^4
10^3
10^2
10
10^{-2}
10^{-1}
1
10
10^2
10^3
10^4
DRAINAGE AREA, IN SQUARE MILES
Selected drainage basins in Illinois

GRAPHICS

Time-series data stored in WDM data sets of type time series can be plotted as a Time plot. The data can be plotted at any time interval and for any time period found in the WDM file, within the limitations defined in table 3. Multiple curves may be drawn, and each curve can be drawn at a different time interval. A time series may be aggregated or disaggregated to a different time interval before it is drawn. Arithmetic or logarithmic scales may be used on the left and (or) right y axes. A special feature of the time-series plots is the optional auxiliary arithmetic axis that can be drawn above the main plot. The auxiliary axis is usually used for precipitation data, but any time series can be drawn there. The characteristics of both the plotting fields and the curves may be changed and additional text may be added to the plot. See the GRAPHICS/MODIFY section for more details on modifying the final plot. See the GRAPHICS/INPUT section for more details on identifying the plot type and selecting the time series.

1 Select INPUT to identify the type of plot, the data sets, and the period of record.

A. Select TIME for a time-series plot.

B. Enter the data-set numbers of the time series to be drawn (the data-set SELECT option is not available here).

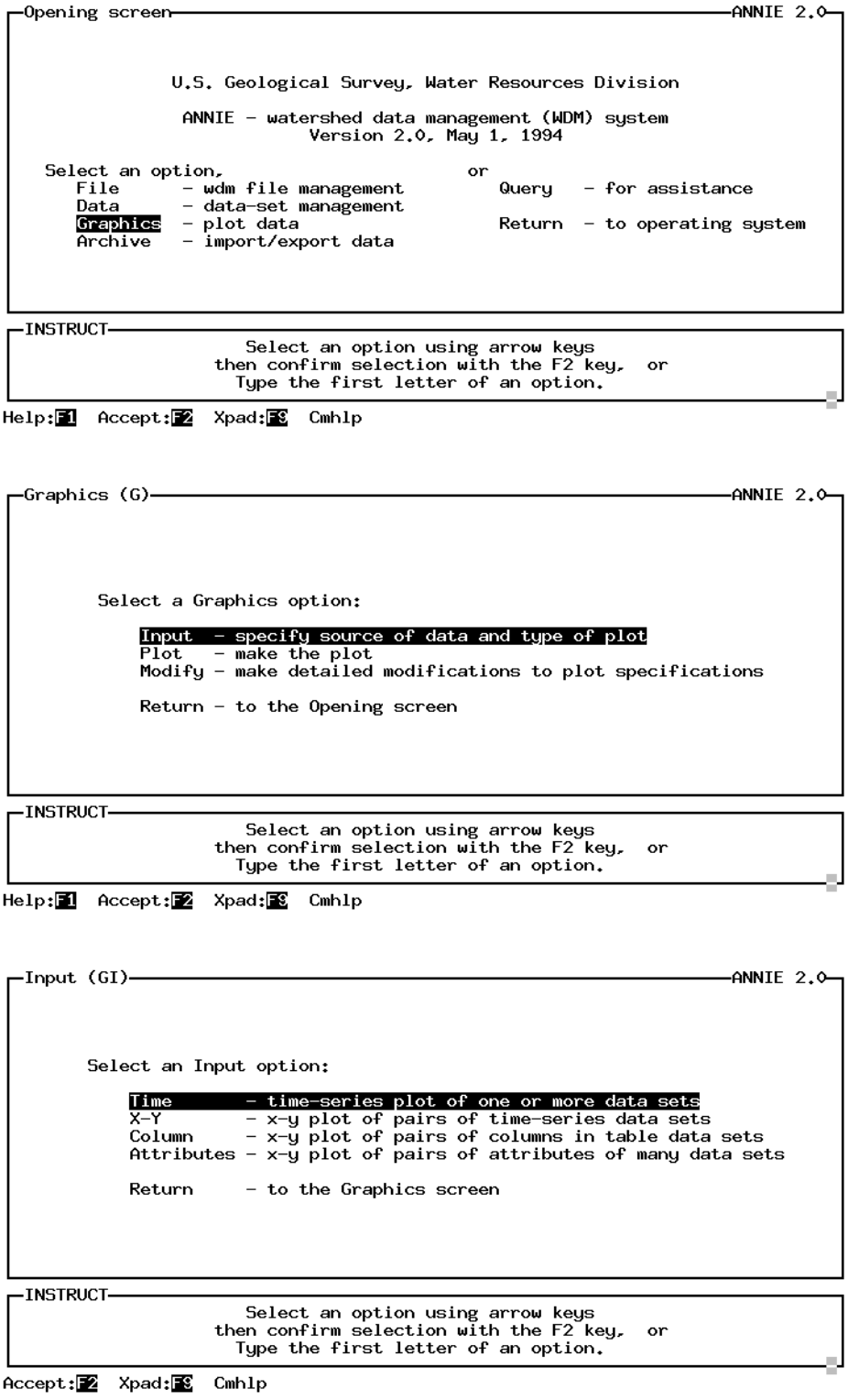
C. Specify the period of record to be included in the plot. For each curve, specify the time step for the curve and the transformation to be used if the time step is not the same time step as that of the data.

2 (Optional) Select MODIFY to refine or customize the plotting specifications.

3 Select PLOT to generate the plot.

4 Repeat steps 2 and 3 as needed to generate the desired finished plot. Repeat steps 1, 2, and 3 for a new plot.

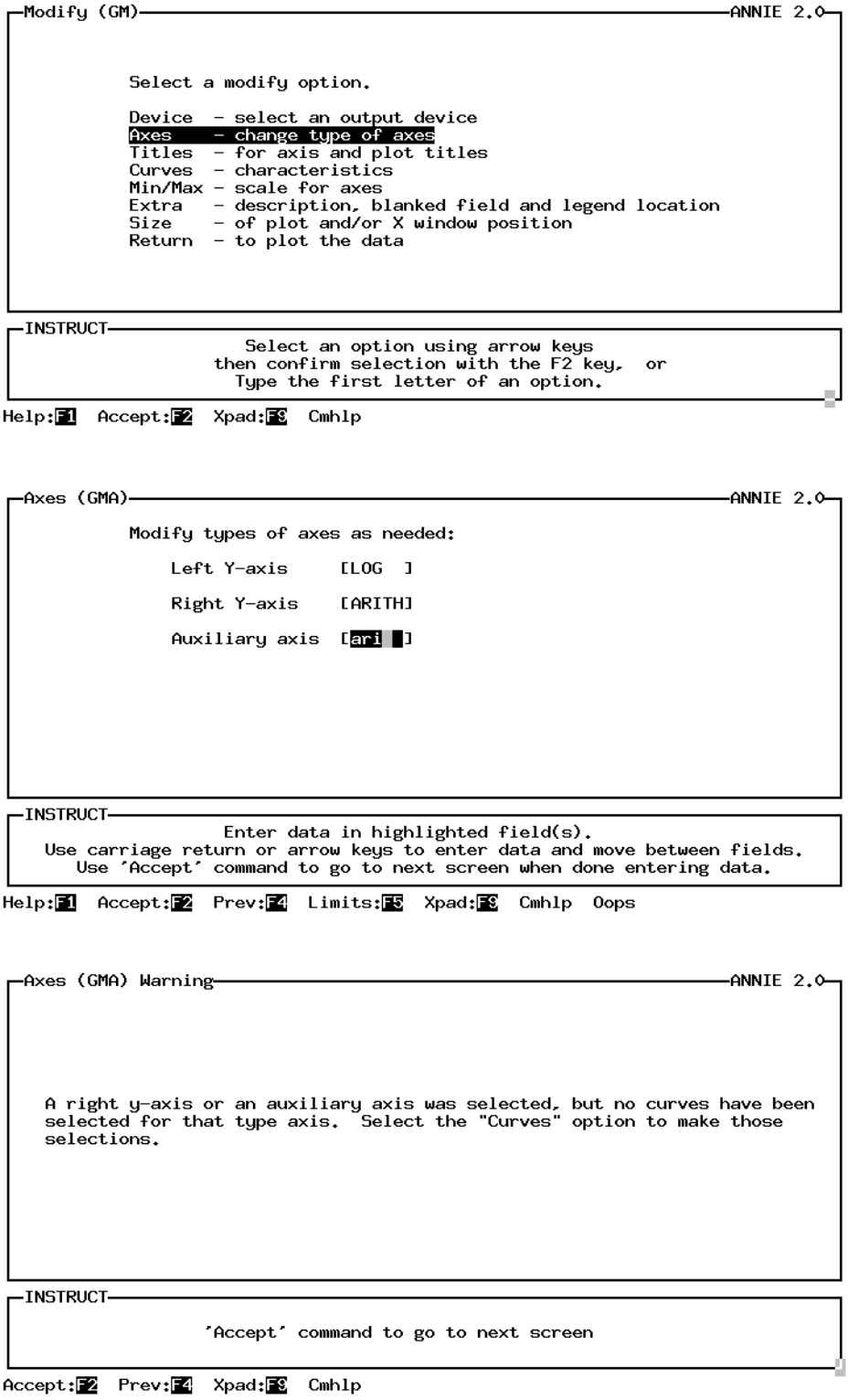
In the example, time-series data from data-sets 5, 6, and 7 (precipitation, flow, and evaporation, respectively) were drawn. By default, the data would be drawn for the period of record common to all three data sets, with each curve drawn at the time step of the data sets. This was changed to the water year 1957, with the evaporation curve being TOTALed to a 1-month time step. Also by default, all curves would be drawn against an arithmetic scale on the left y axis using the values of the attribute TSTYPE for the axis label. To make the plot more useful, these defaults were modified. The Axes were changed to include a logarithmic left y axis for the flow, an arithmetic right y axis for the monthly evaporation, and an arithmetic auxiliary axis for the precipitation. Titles were added. The characteristics of the Curves were modified so that each curve was drawn with a SOLID line, and the axis and legend for each curve was specified. The Min/max scales were modified; the lower limit for the left y axis was decreased and the upper limit of the right y axis was increased to prevent the two curves from overlapping in the plot. By default, the legend appears in the upper left of the plotting field; this was modified under Extra/Locate. The PLOT was then drawn.

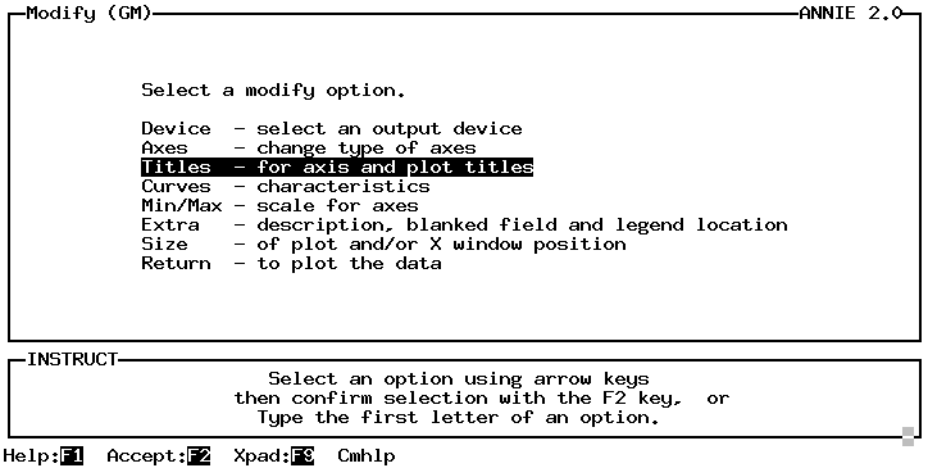

Opening screen
ANNIE 2.0
U.S. Geological Survey, Water Resources Division
ANNIE - watershed data management (WDM) system
Version 2.0, May 1, 1994
Select an option,
File - wdm file management
Data - data-set management
Graphics - plot data
Archive - import/export data
or
Query - for assistance
Return - to operating system
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp
Graphics (G)
ANNIE 2.0
Select a Graphics option:
Input - specify source of data and type of plot
Plot - make the plot
Modify - make detailed modifications to plot specifications
Return - to the Opening screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp
Input (GI)
ANNIE 2.0
Select an Input option:
Time - time-series plot of one or more data sets
X-Y - x-y plot of pairs of time-series data sets
Column - x-y plot of pairs of columns in table data sets
Attributes - x-y plot of pairs of attributes of many data sets
Return - to the Graphics screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Xpad:F9 Cmhlp

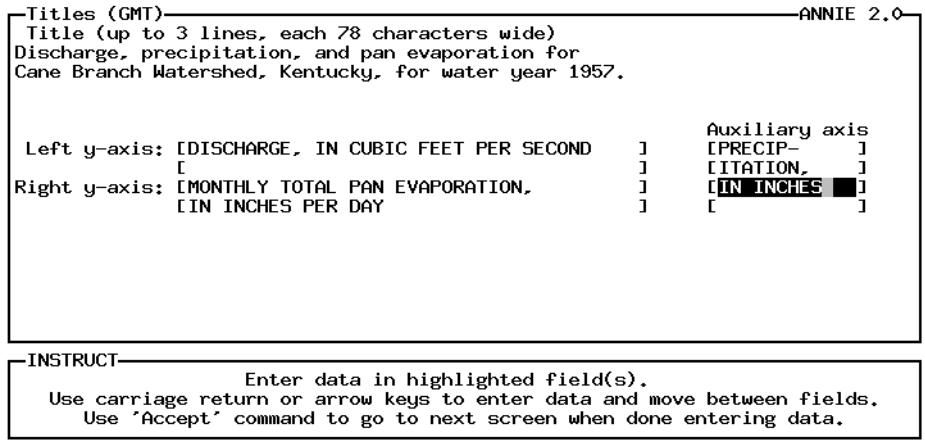
```
Time (GIT) data sets                                                    ANNIE 2.0

      Enter data-set numbers for up to 8 time-series curves:

                  Data-set                    Data-set
          Curve    Number            Curve     Number
          -----   --------           -----    --------
            1          5               5           0
            2          6               6           0
            3       7                  7           0
            4          0               8           0

INSTRUCT
                   Enter data in highlighted field(s).
   Use carriage return or arrow keys to enter data and move between fields.
      Use 'Accept' command to go to next screen when done entering data.

Help:F1  Accept:F2  Prev:F4  Limits:F5  Xpad:F9  Cmhlp  Oops
```

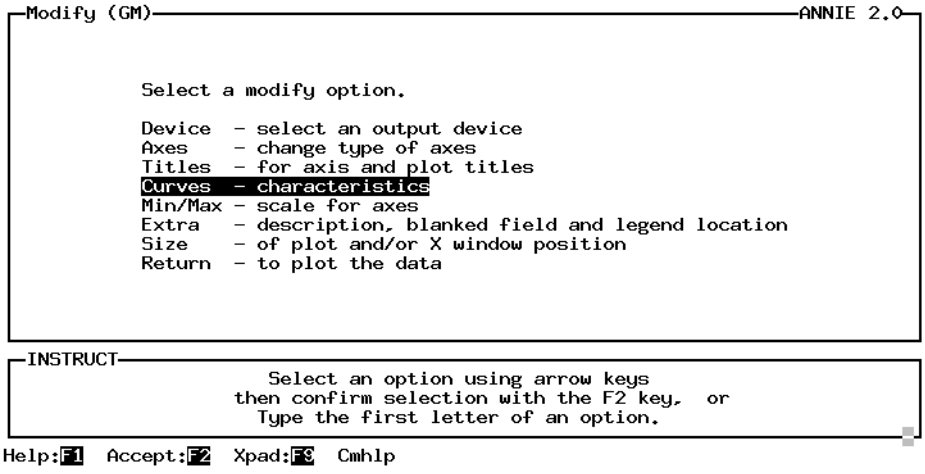
```
Time (GIT) time periods                                                 ANNIE 2.0
Modify specifications for the curves:
          Year    Month   Day     Hour    Minute  Second
 Start    1956      10       1       0       0       0
 End      1957       9      30      24       0       0

                                 transfor-
          Curve  <- time step >   mation
            1         1 DAY       RATE
            2         1 DAY       RATE
            3         1 MONTH     total

INSTRUCT
                   Enter data in highlighted field(s).
   Use carriage return or arrow keys to enter data and move between fields.
      Use 'Accept' command to go to next screen when done entering data.

Help:F1  Accept:F2  Prev:F4  Limits:F5  Xpad:F9  Cmhlp  Oops
```

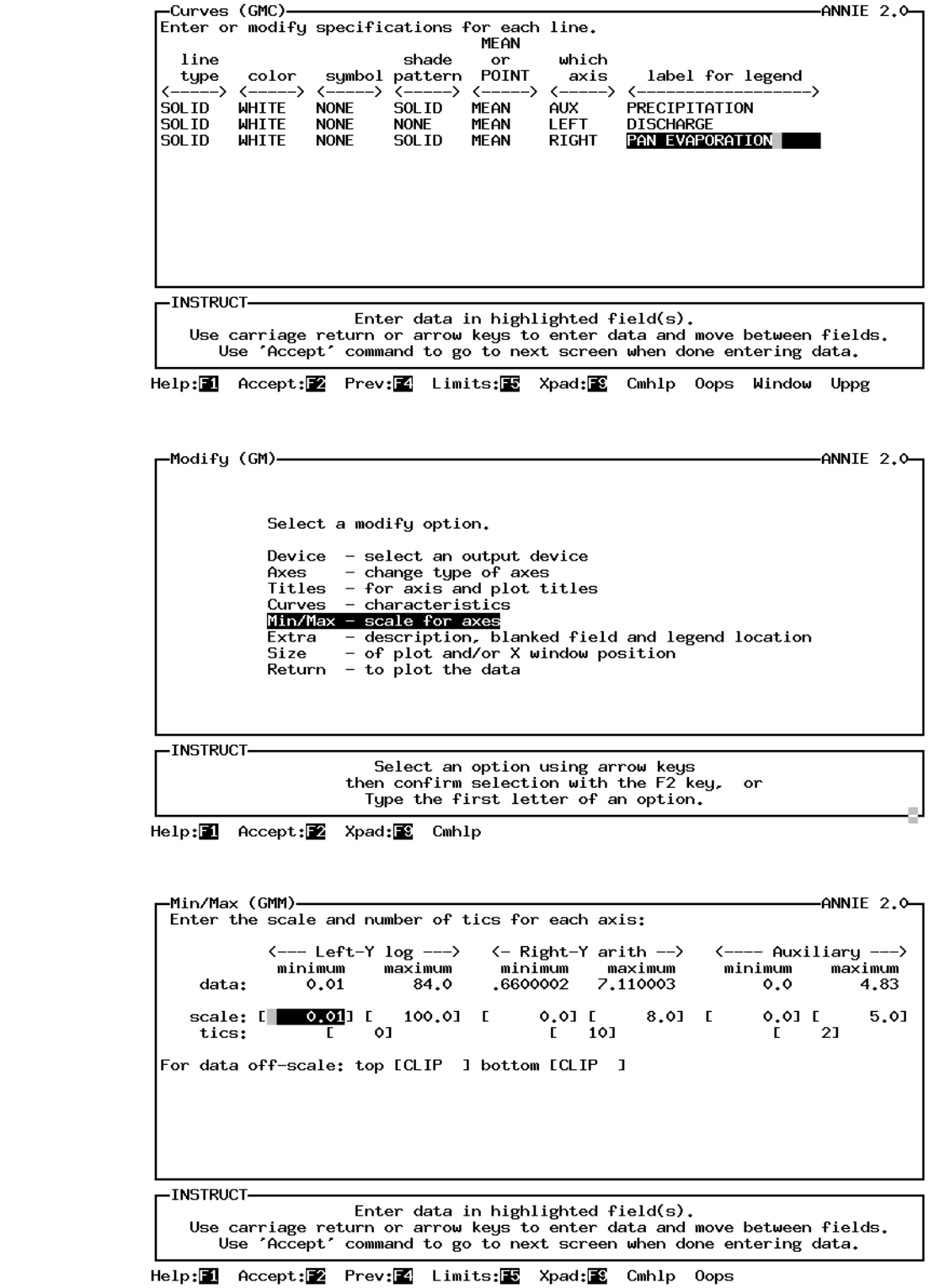
```
Graphics (G)                                                            ANNIE 2.0



       Select a Graphics option:

           Input  - specify source of data and type of plot
           Plot   - make the plot
           Modify - make detailed modifications to plot specifications

           Return - to the Opening screen

INSTRUCT
                    Select an option using arrow keys
                 then confirm selection with the F2 key,  or
                   Type the first letter of an option.

Help:F1  Accept:F2  Xpad:F9  Cmhlp
```

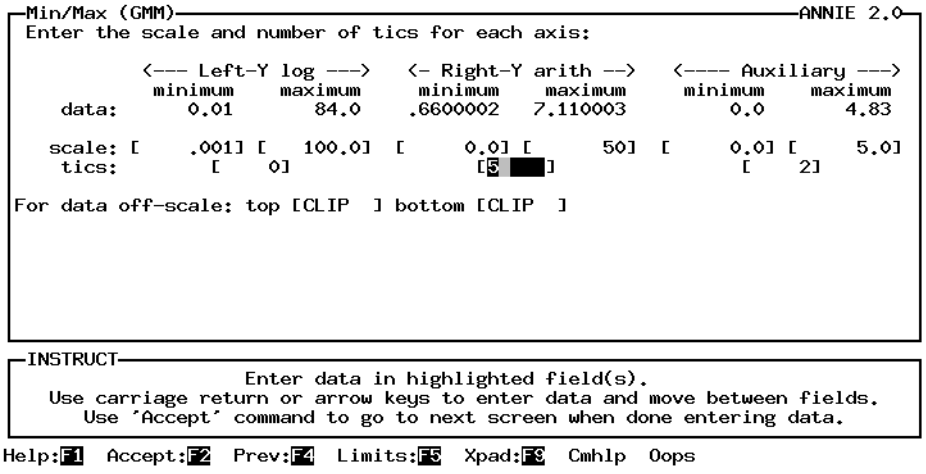

Modify (GM)
ANNIE 2.0
Select a modify option.
Device - select an output device
Axes - change type of axes
Titles - for axis and plot titles
Curves - characteristics
Min/Max - scale for axes
Extra - description, blanked field and legend location
Size - of plot and/or X window position
Return - to plot the data
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp
Axes (GMA)
ANNIE 2.0
Modify types of axes as needed:
Left Y-axis [LOG]
Right Y-axis [ARITH]
Auxiliary axis [ari]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F3 Cmhlp Oops
Axes (GMA) Warning
ANNIE 2.0
A right y-axis or an auxiliary axis was selected, but no curves have been
selected for that type axis. Select the "Curves" option to make those
selections.
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Prev:F4 Xpad:F3 Cmhlp

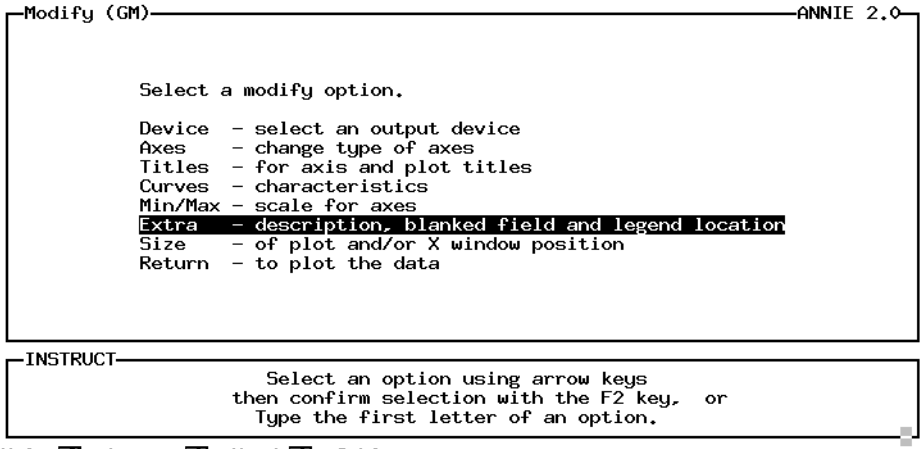

Modify (GM)
ANNIE 2.0
Select a modify option.
Device - select an output device
Axes - change type of axes
Titles - for axis and plot titles
Curves - characteristics
Min/Max - scale for axes
Extra - description, blanked field and legend location
Size - of plot and/or X window position
Return - to plot the data
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp

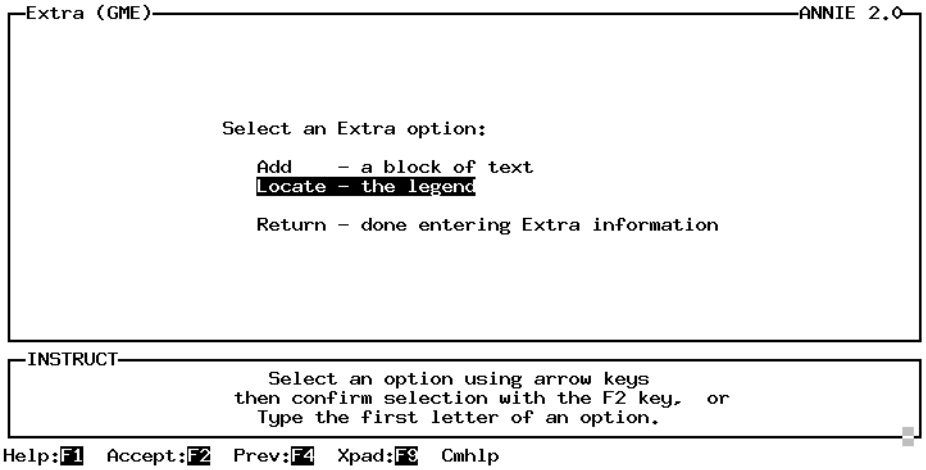

Titles (GMT)
ANNIE 2.0
Title (up to 3 lines, each 78 characters wide)
Discharge, precipitation, and pan evaporation for
Cane Branch Watershed, Kentucky, for water year 1957.
Auxiliary axis
Left y-axis: [DISCHARGE, IN CUBIC FEET PER SECOND] [PRECIP-]
[ ] [ITATION,]
Right y-axis: [MONTHLY TOTAL PAN EVAPORATION,] [IN INCHES]
[IN INCHES PER DAY] [ ]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops

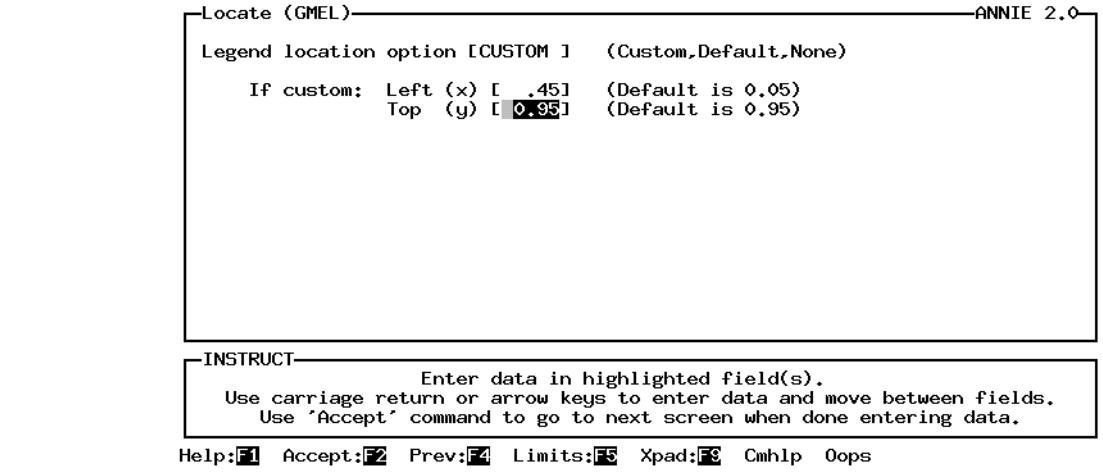

Modify (GM)
ANNIE 2.0
Select a modify option.
Device - select an output device
Axes - change type of axes
Titles - for axis and plot titles
Curves - characteristics
Min/Max - scale for axes
Extra - description, blanked field and legend location
Size - of plot and/or X window position
Return - to plot the data
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp

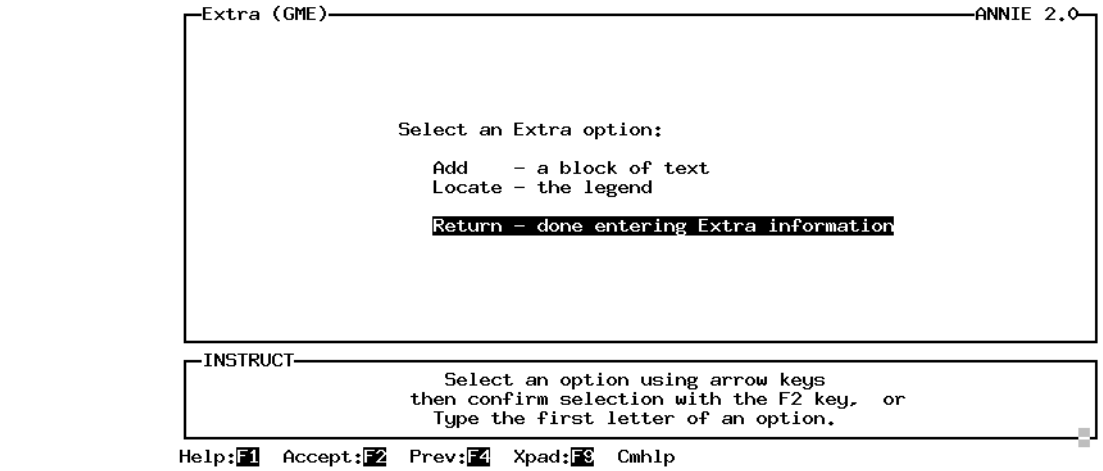

Curves (GMC) ANNIE 2.0
Enter or modify specifications for each line.
line type color symbol shade pattern MEAN or POINT which axis label for legend
SOLID WHITE NONE SOLID MEAN AUX PRECIPITATION
SOLID WHITE NONE NONE MEAN LEFT DISCHARGE
SOLID WHITE NONE SOLID MEAN RIGHT PAN EVAPORATION
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops Window Uppg
Modify (GM) ANNIE 2.0
Select a modify option.
Device - select an output device
Axes - change type of axes
Titles - for axis and plot titles
Curves - characteristics
Min/Max - scale for axes
Extra - description, blanked field and legend location
Size - of plot and/or X window position
Return - to plot the data
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp
Min/Max (GMM) ANNIE 2.0
Enter the scale and number of tics for each axis:
<--- Left-Y log ---> <- Right-Y arith --> <---- Auxiliary --->
minimum maximum minimum maximum minimum maximum
data: 0.01 84.0 .6600002 7.110003 0.0 4.83
scale: [0.01] [100.0] [0.0] [8.0] [0.0] [5.0]
tics: [0] [10] [2]
For data off-scale: top [CLIP] bottom [CLIP]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops

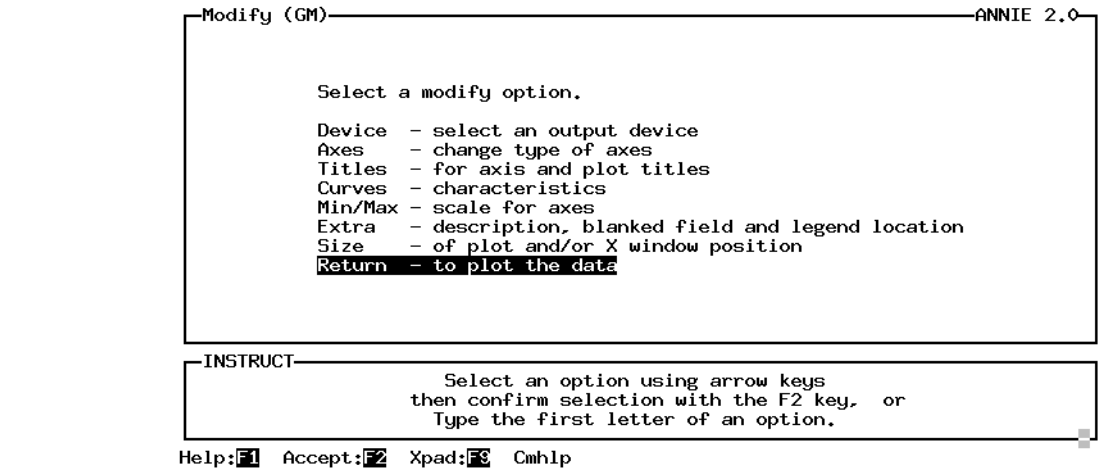

Min/Max (GMM)
ANNIE 2.0
Enter the scale and number of tics for each axis:
<--- Left-Y log --->
<- Right-Y arith -->
<---- Auxiliary --->
minimum maximum minimum maximum minimum maximum
data: 0.01 84.0 .6600002 7.110003 0.0 4.83
scale: [.001] [100.0] [0.0] [50] [0.0] [5.0]
tics: [0] [5] [2]
For data off-scale: top [CLIP] bottom [CLIP]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops

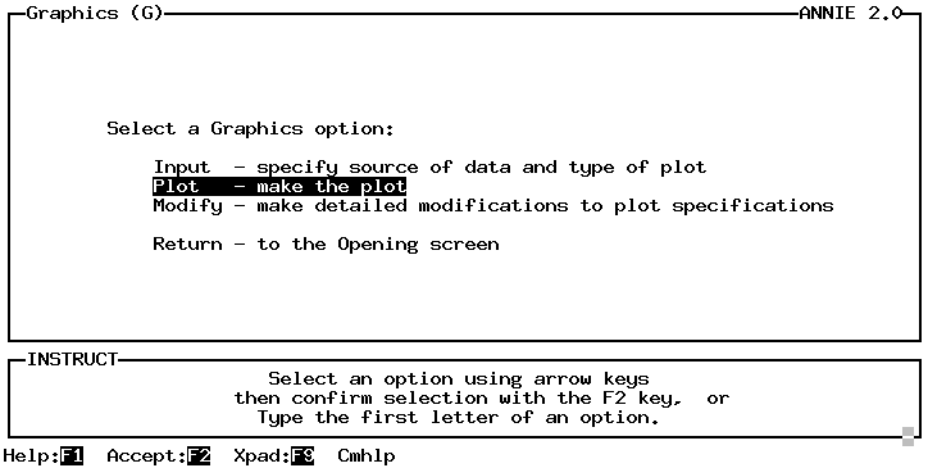

Modify (GM)
ANNIE 2.0
Select a modify option.
Device - select an output device
Axes - change type of axes
Titles - for axis and plot titles
Curves - characteristics
Min/Max - scale for axes
Extra - description, blanked field and legend location
Size - of plot and/or X window position
Return - to plot the data
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp

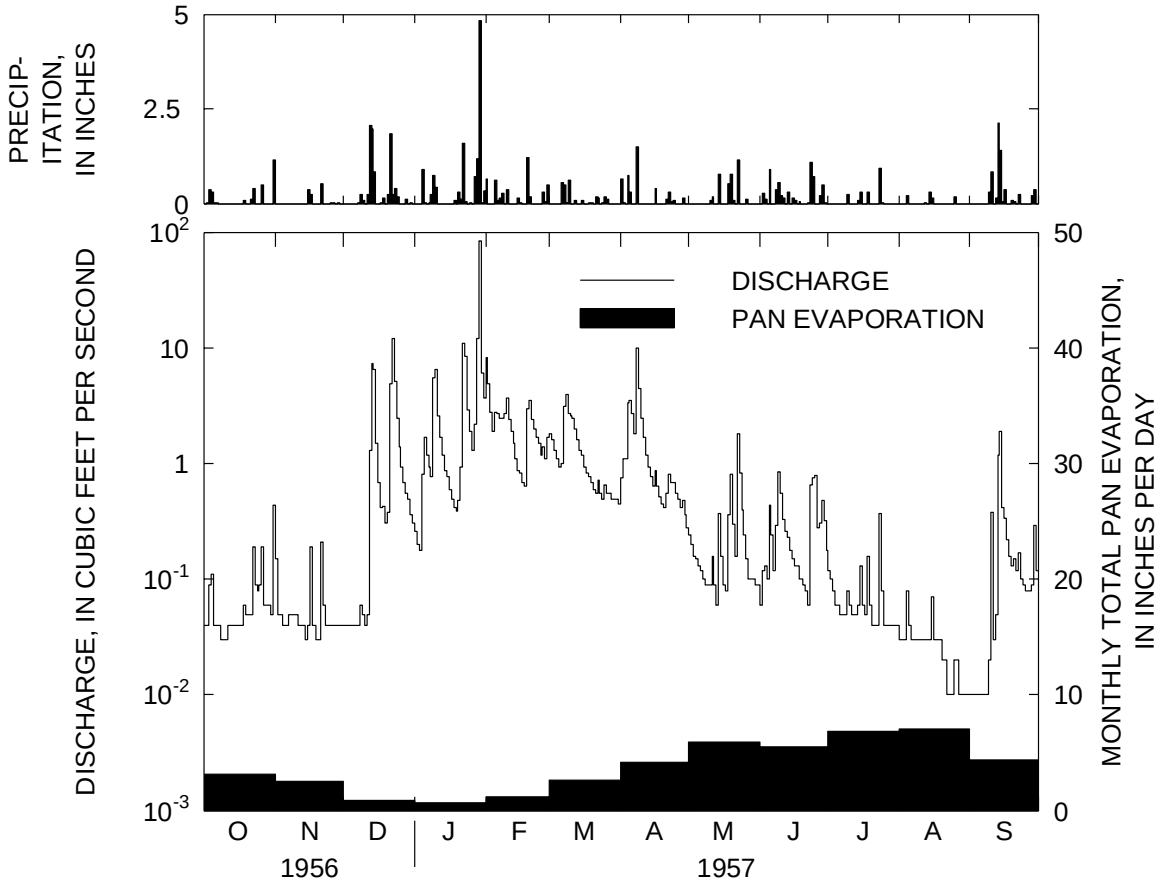

Extra (GME)
ANNIE 2.0
Select an Extra option:
Add - a block of text
Locate - the legend
Return - done entering Extra information
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Prev:F4 Xpad:F9 Cmhlp


Locate (GMEL)
ANNIE 2.0
Legend location option [CUSTOM] (Custom,Default,None)
If custom: Left (x) [.45] (Default is 0.05)
Top (y) [0.95] (Default is 0.95)
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops


Extra (GME)
ANNIE 2.0
Select an Extra option:
Add - a block of text
Locate - the legend
Return - done entering Extra information
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Prev:F4 Xpad:F9 Cmhlp


Modify (GM)
ANNIE 2.0
Select a modify option.
Device - select an output device
Axes - change type of axes
Titles - for axis and plot titles
Curves - characteristics
Min/Max - scale for axes
Extra - description, blanked field and legend location
Size - of plot and/or X window position
Return - to plot the data
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp


Graphics (G)
ANNIE 2.0
Select a Graphics option:
Input - specify source of data and type of plot
Plot - make the plot
Modify - make detailed modifications to plot specifications
Return - to the Opening screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp



Discharge, precipitation, and pan evaporation for
Cane Branch Watershed, Kentucky, for water year 1957.

GRAPHICS

Time-series data stored in WDM data sets of type time series can be plotted one against another as an X-Y plot. The data can be plotted at any time interval and for any period of record in the WDM file, within the limitations defined in table 3. The same time interval will be used for both of the time series of a curve; and the time series will be aggregated or disaggregated to the specified time interval before it is drawn. Multiple curves may be drawn, and the time interval of each curve can be different. Arithmetic or logarithmic scales may be used on the left and (or) right y axes. The characteristics of both the plotting fields and the curves may be changed, and additional text may be added to the plot. See the GRAPHICS/MODIFY section for more details on identifying the plot type and selecting the time series.

1 Select INPUT to identify the type of plot, the data sets, and the period of record.

A. Select X-Y for an x-y plot.

B. Enter the data-set numbers of the time series to be drawn (the data-set SELECT option is not available here).

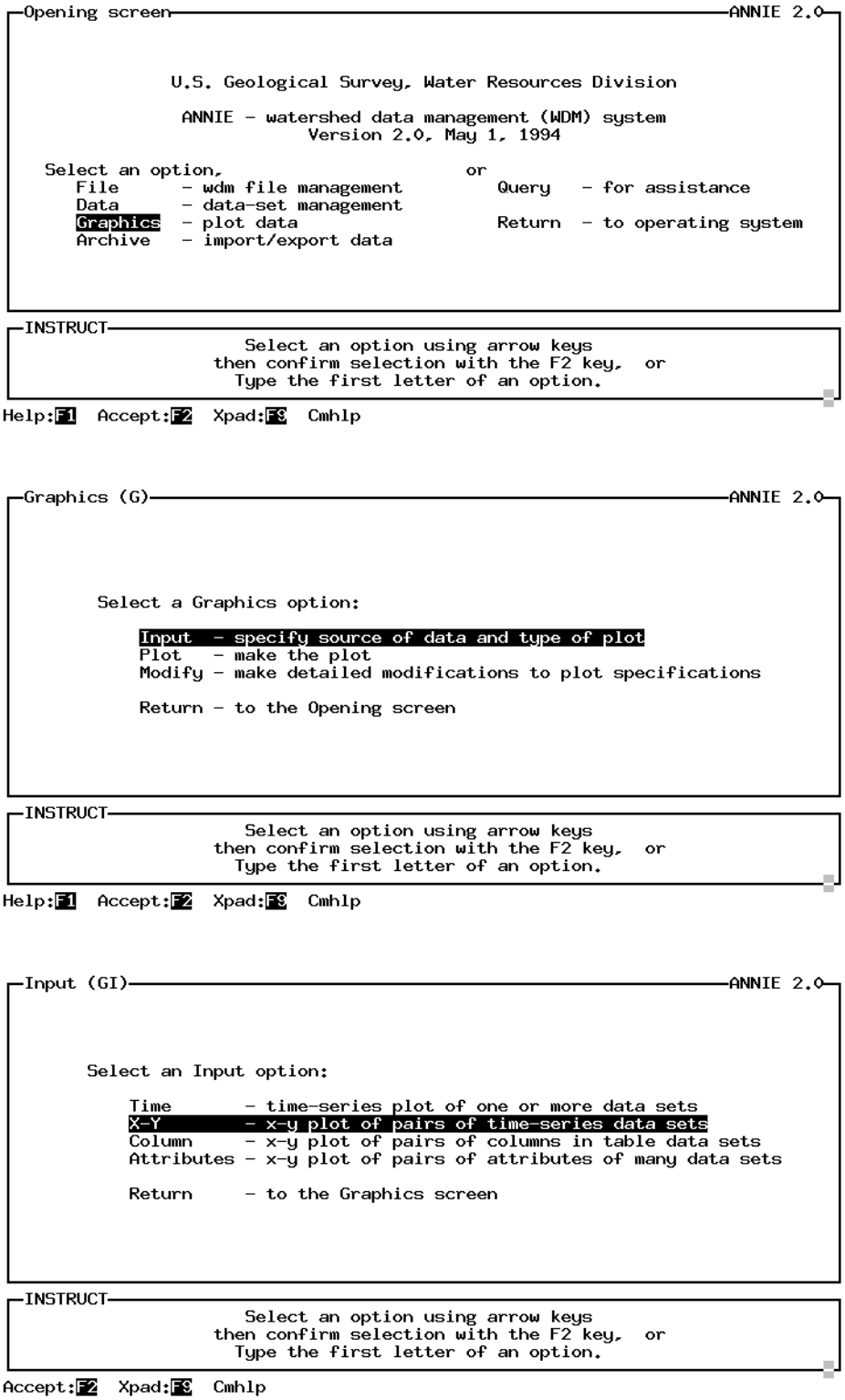
C. Specify the period of record to be included in the plot. For each curve, specify the time step for the curve and the transformation to be used if the time step is not the same time step as that of the data.

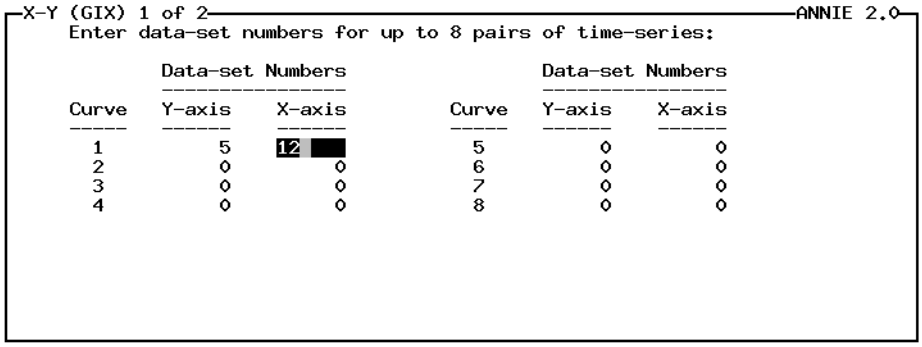
2 (Optional) Select MODIFY to refine or customize the plotting specifications.

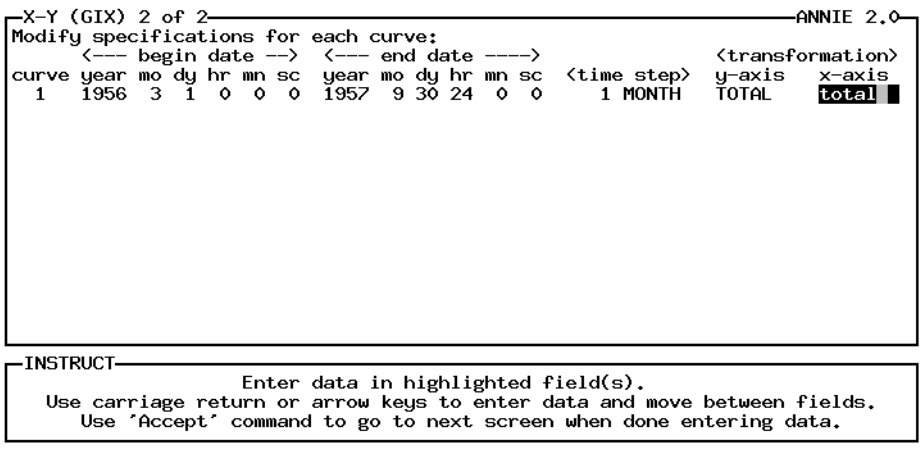
3 Select PLOT to generate the plot.

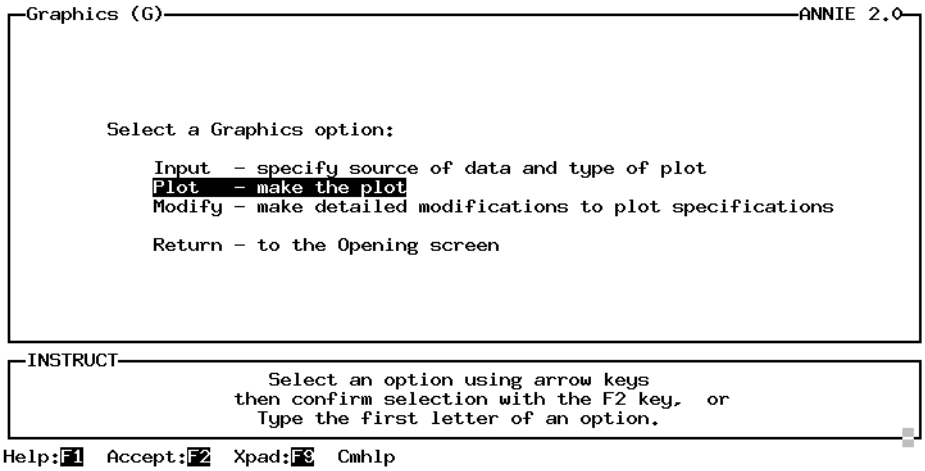
4 Repeat steps 2 and 3 as needed to generate the desired finished plot. Repeat steps 1, 2, and 3 for a new plot.

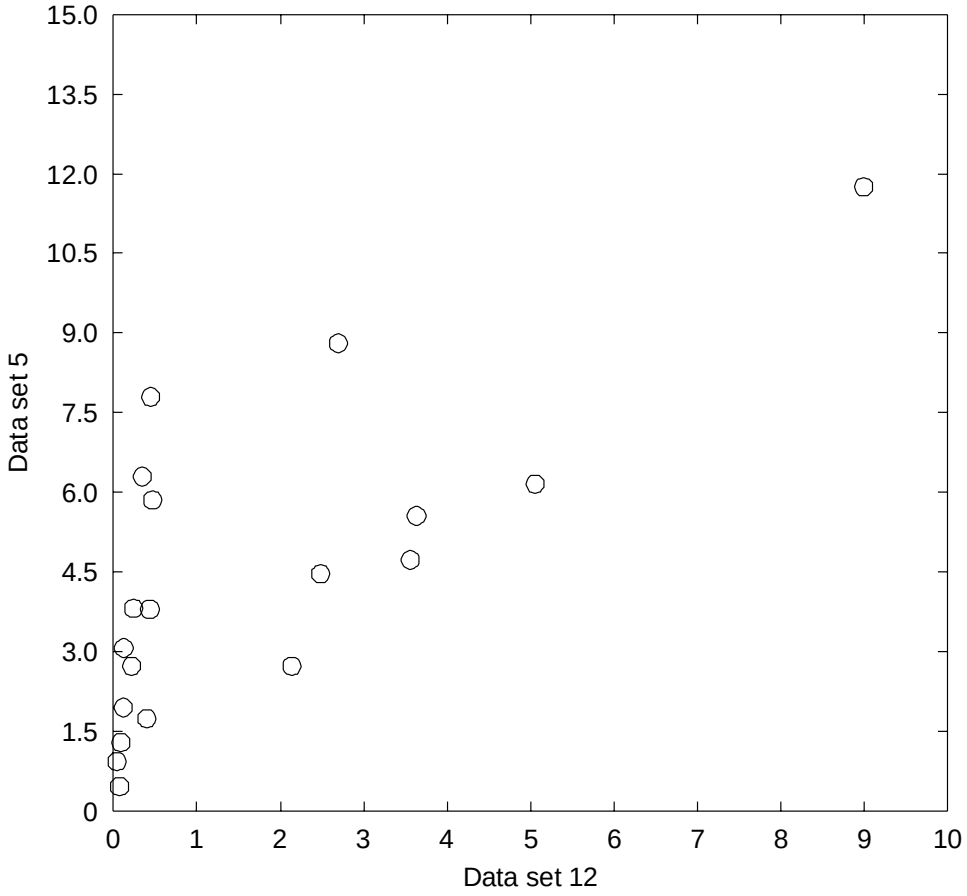
In the example, time-series data from data-sets 5 and 12 (precipitation and runoff, respectively) were drawn. By default, the data would be drawn for the period of record common to the two data sets at the smallest time step that was an even increment of each of the data sets. This was modified to the shorter period of March 1956 through September 1957, and the time step was changed from 1 DAY to 1 MONTH with the transformations changed from RATE to TOTAL. The PLOT was then drawn using the defaults for the plotting characteristics. MODIFY was then used to refine the plot. Both Axes were changed from ARITHmetic to LOGarithmic. Titles were added. The type of symbol was changed from O (circle) to SQUARE under Curves. Min/max was selected, with the defaults provided by the program accepted. The Size of the plot was reduced by changing the length of the horizontal (x) axis from 4.4 to 3.0. The PLOT was then drawn using these new characteristics. MODIFY was then used to change the graphics output DEVICE. The default output of SCREEN was changed to LASER; the file graph3b.ps was named for the postscript file. The PLOT was then drawn again, with the output now directed to the file.

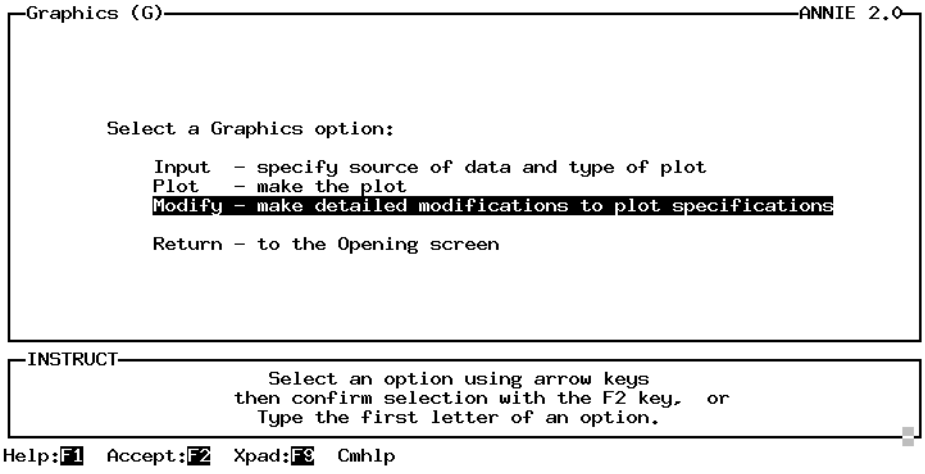

Opening screen
ANNIE 2.0
U.S. Geological Survey, Water Resources Division
ANNIE - watershed data management (WDM) system
Version 2.0, May 1, 1994
Select an option,
File - wdm file management
Data - data-set management
Graphics - plot data
Archive - import/export data
or
Query - for assistance
Return - to operating system
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp
Graphics (G)
ANNIE 2.0
Select a Graphics option:
Input - specify source of data and type of plot
Plot - make the plot
Modify - make detailed modifications to plot specifications
Return - to the Opening screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp
Input (GI)
ANNIE 2.0
Select an Input option:
Time - time-series plot of one or more data sets
X-Y - x-y plot of pairs of time-series data sets
Column - x-y plot of pairs of columns in table data sets
Attributes - x-y plot of pairs of attributes of many data sets
Return - to the Graphics screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Xpad:F3 Cmhlp

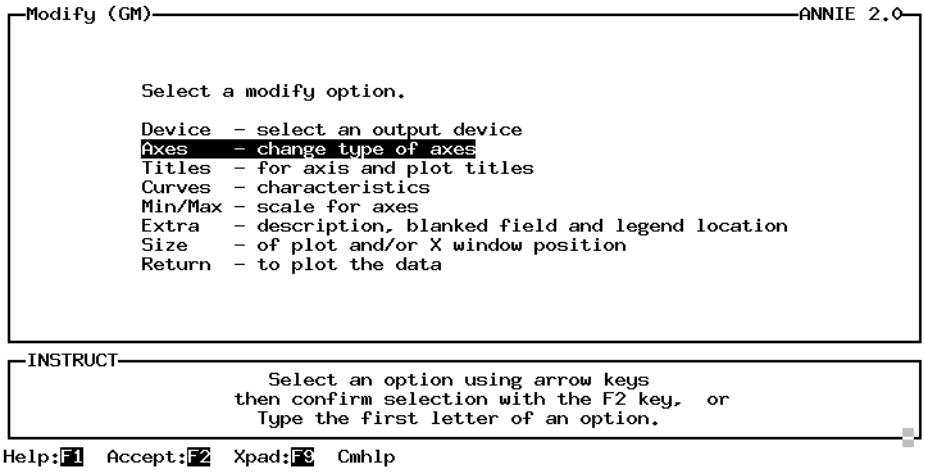

X-Y (GIX) 1 of 2
ANNIE 2.0
Enter data-set numbers for up to 8 pairs of time-series:
Data-set Numbers
Curve Y-axis X-axis
1 5 12
2 0 0
3 0 0
4 0 0
Data-set Numbers
Curve Y-axis X-axis
5 0 0
6 0 0
7 0 0
8 0 0
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops

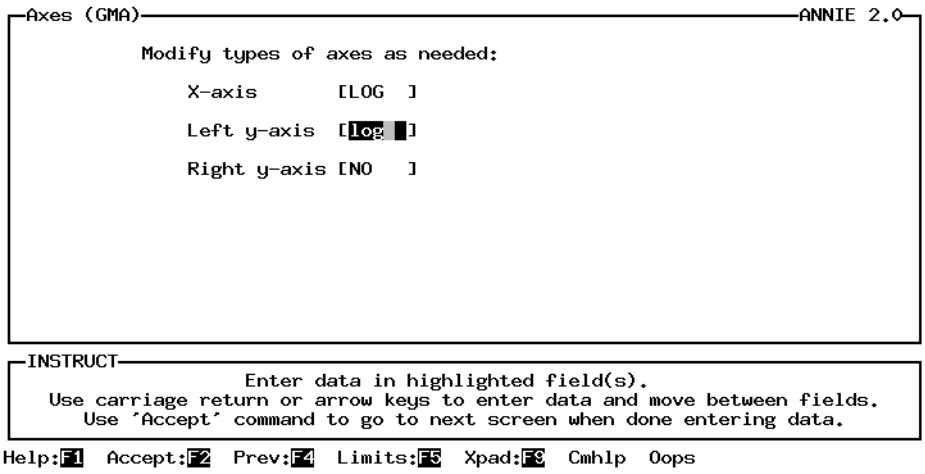

X-Y (GIX) 2 of 2
ANNIE 2.0
Modify specifications for each curve:
<--- begin date --> <--- end date ----> <transformation>
curve year mo dy hr mn sc year mo dy hr mn sc <time step> y-axis x-axis
1 1956 3 1 0 0 0 1957 9 30 24 0 0 1 MONTH TOTAL total
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops Window

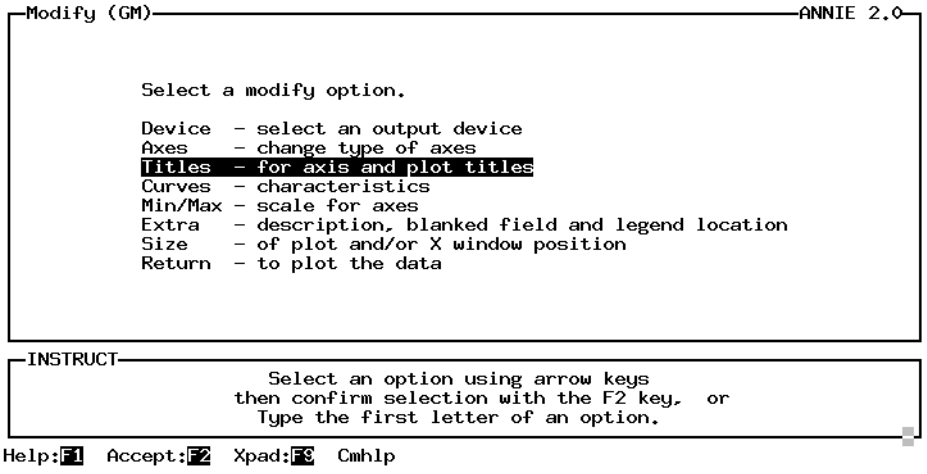

Graphics (G)
ANNIE 2.0
Select a Graphics option:
Input - specify source of data and type of plot
Plot - make the plot
Modify - make detailed modifications to plot specifications
Return - to the Opening screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp

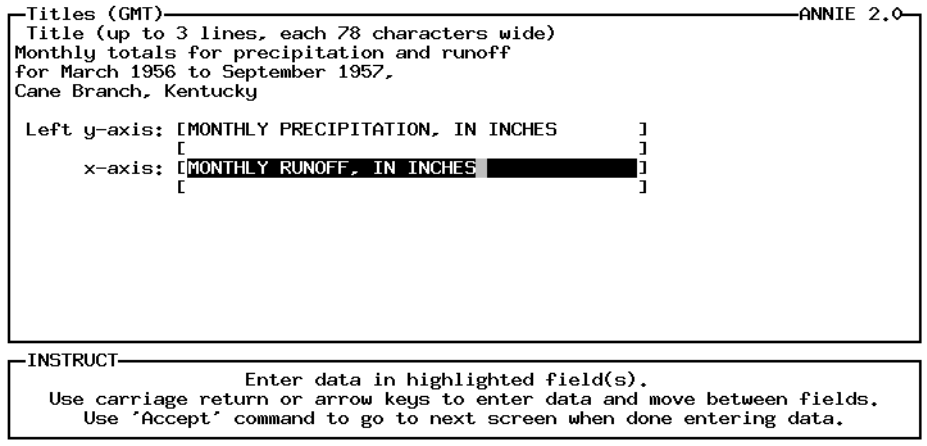

15.0
13.5
12.0
10.5
9.0
7.5
6.0
4.5
3.0
1.5
0
Data set 5
0
1
2
3
4
5
6
7
8
9
10
Data set 12

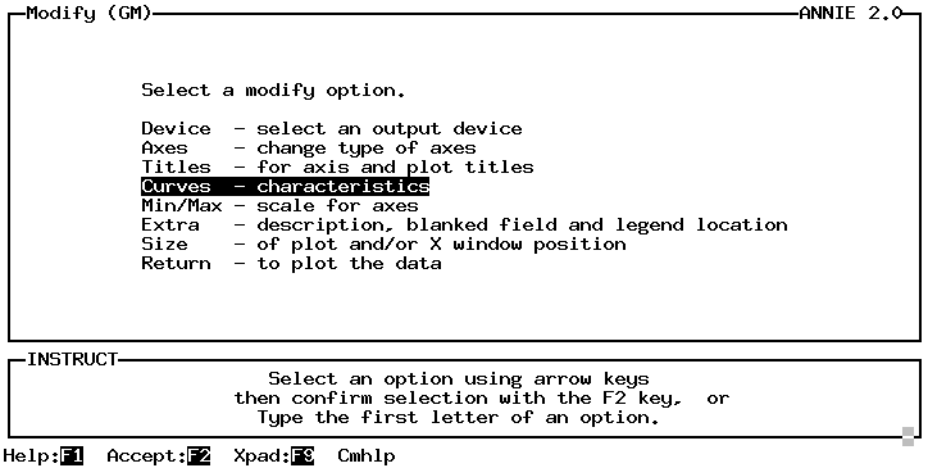

Graphics (G)
ANNIE 2.0
Select a Graphics option:
Input - specify source of data and type of plot
Plot - make the plot
Modify - make detailed modifications to plot specifications
Return - to the Opening screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp

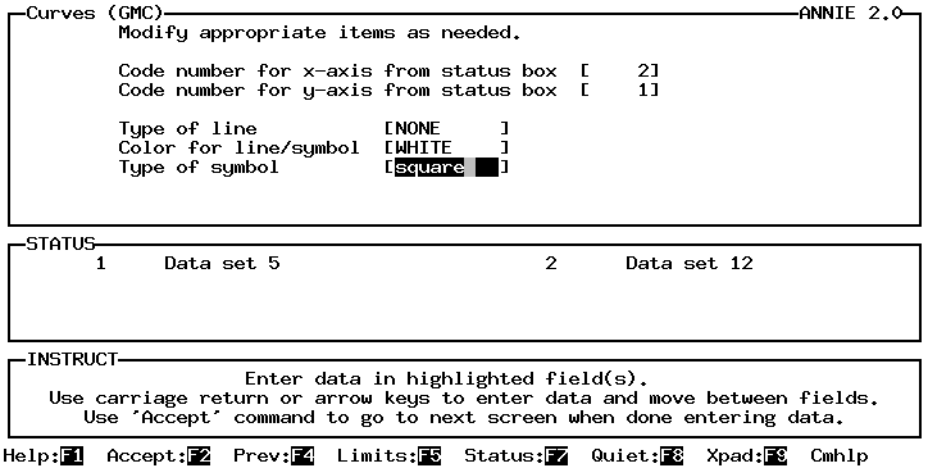

Modify (GM)
ANNIE 2.0
Select a modify option.
Device - select an output device
Axes - change type of axes
Titles - for axis and plot titles
Curves - characteristics
Min/Max - scale for axes
Extra - description, blanked field and legend location
Size - of plot and/or X window position
Return - to plot the data
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp

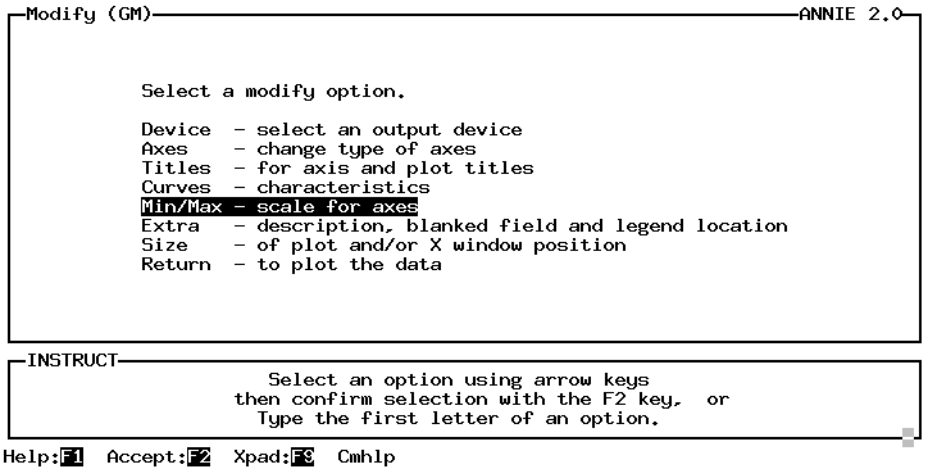

Axes (GMA)
ANNIE 2.0
Modify types of axes as needed:
X-axis [LOG]
Left y-axis [log]
Right y-axis [NO]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F3 Cmhlp Oops

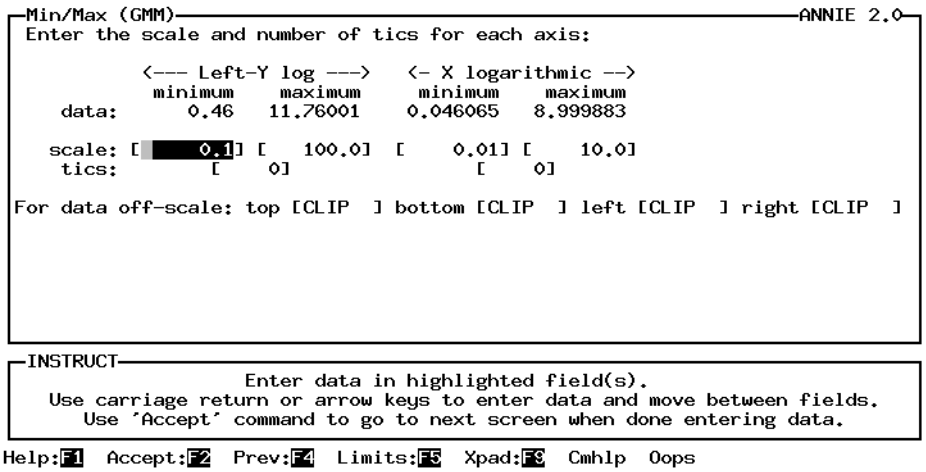

Modify (GM)
ANNIE 2.0
Select a modify option.
Device - select an output device
Axes - change type of axes
Titles - for axis and plot titles
Curves - characteristics
Min/Max - scale for axes
Extra - description, blanked field and legend location
Size - of plot and/or X window position
Return - to plot the data
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp

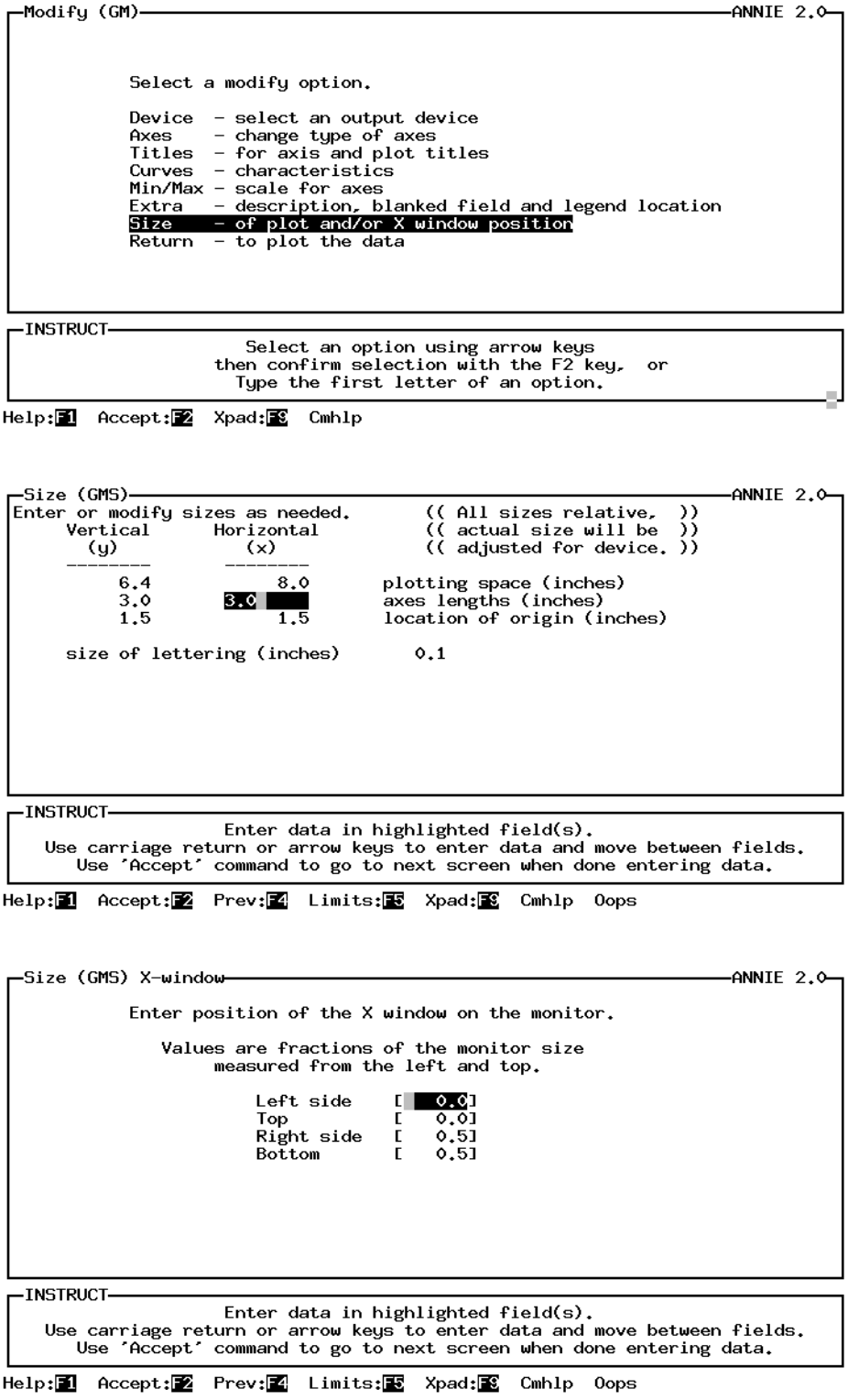

Titles (GMT)
ANNIE 2.0
Title (up to 3 lines, each 78 characters wide)
Monthly totals for precipitation and runoff
for March 1956 to September 1957,
Cane Branch, Kentucky
Left y-axis: [MONTHLY PRECIPITATION, IN INCHES]
x-axis: [MONTHLY RUNOFF, IN INCHES]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F3 Cmhlp Oops

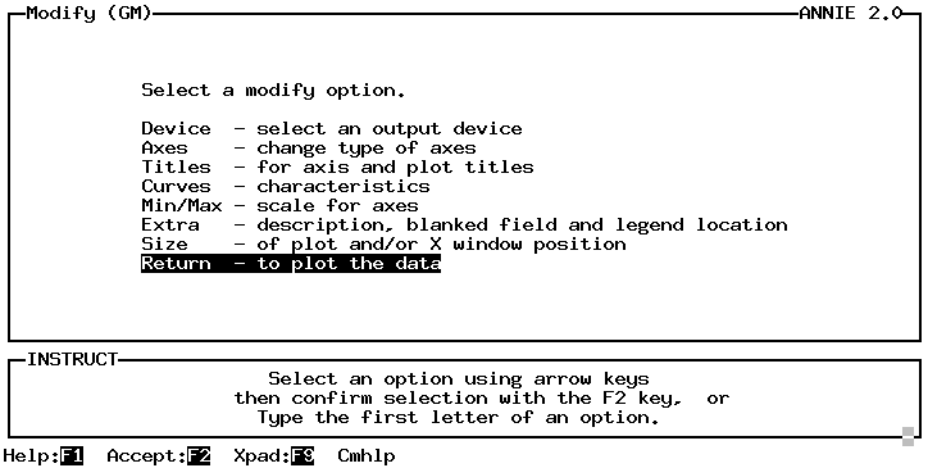

Modify (GM)
ANNIE 2.0
Select a modify option.
Device - select an output device
Axes - change type of axes
Titles - for axis and plot titles
Curves - characteristics
Min/Max - scale for axes
Extra - description, blanked field and legend location
Size - of plot and/or X window position
Return - to plot the data
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp

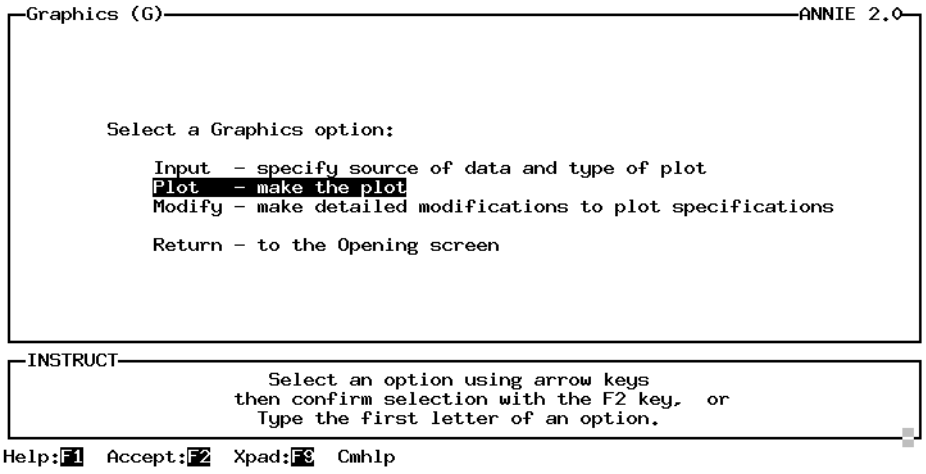

Curves (GMC)
ANNIE 2.0
Modify appropriate items as needed.
Code number for x-axis from status box [2]
Code number for y-axis from status box [1]
Type of line [NONE]
Color for line/symbol [WHITE]
Type of symbol [square]
STATUS
1 Data set 5
2 Data set 12
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Status:F7 Quiet:F8 Xpad:F9 Cmhlp

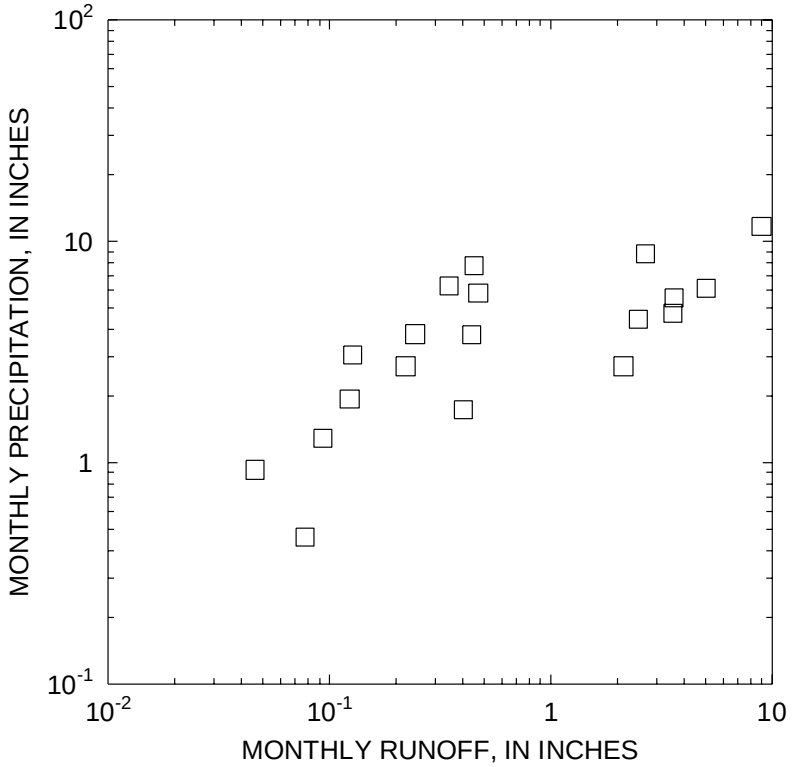

Modify (GM)
ANNIE 2.0
Select a modify option.
Device - select an output device
Axes - change type of axes
Titles - for axis and plot titles
Curves - characteristics
Min/Max - scale for axes
Extra - description, blanked field and legend location
Size - of plot and/or X window position
Return - to plot the data
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp


Min/Max (GMM)
ANNIE 2.0
Enter the scale and number of tics for each axis:
<--- Left-Y log ---> <- X logarithmic -->
minimum maximum minimum maximum
data: 0.46 11.76001 0.046065 8.999883
scale: [0.1] [100.0] [0.01] [10.0]
tics: [0] [0]
For data off-scale: top [CLIP] bottom [CLIP] left [CLIP] right [CLIP]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops

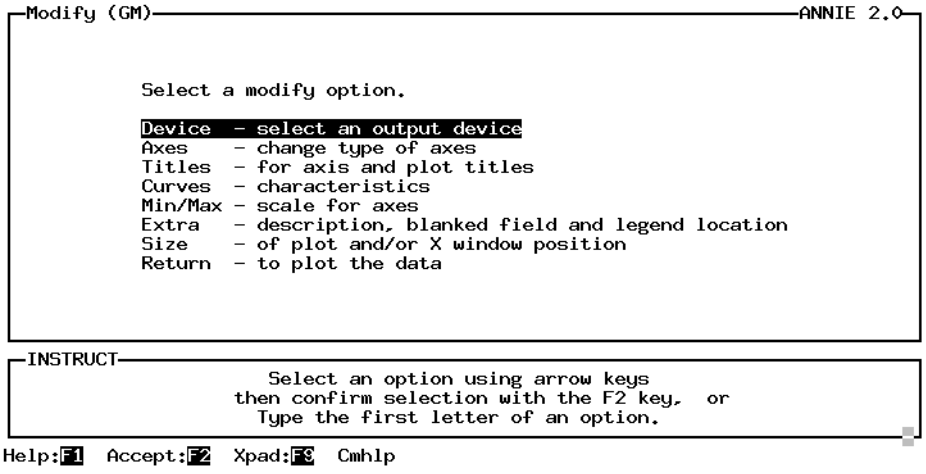

Modify (GM)
ANNIE 2.0
Select a modify option.
Device - select an output device
Axes - change type of axes
Titles - for axis and plot titles
Curves - characteristics
Min/Max - scale for axes
Extra - description, blanked field and legend location
Size - of plot and/or X window position
Return - to plot the data
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp
Size (GMS)
ANNIE 2.0
Enter or modify sizes as needed.
((All sizes relative,))
((actual size will be))
((adjusted for device.))
Vertical (y)
Horizontal (x)
6.4 8.0 plotting space (inches)
3.0 3.0 axes lengths (inches)
1.5 1.5 location of origin (inches)
size of lettering (inches) 0.1
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops
Size (GMS) X-window
ANNIE 2.0
Enter position of the X window on the monitor.
Values are fractions of the monitor size
measured from the left and top.
Left side [0.0]
Top [0.0]
Right side [0.5]
Bottom [0.5]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops

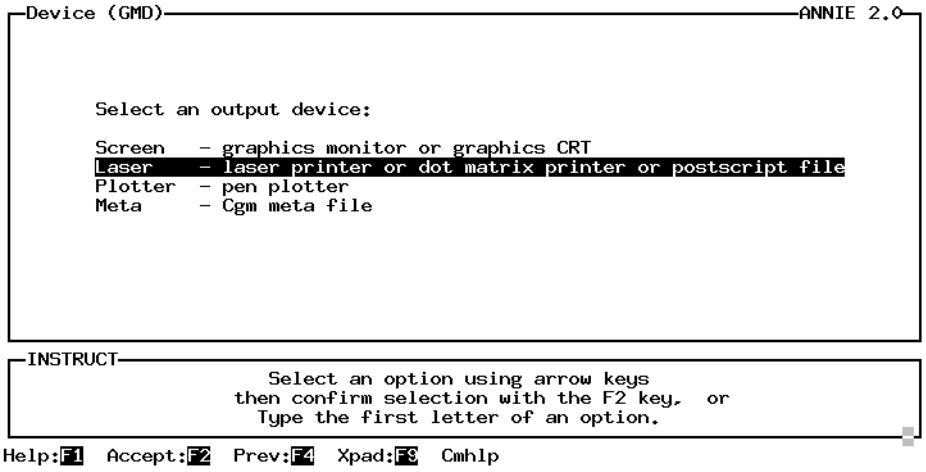

Modify (GM)
ANNIE 2.0
Select a modify option.
Device - select an output device
Axes - change type of axes
Titles - for axis and plot titles
Curves - characteristics
Min/Max - scale for axes
Extra - description, blanked field and legend location
Size - of plot and/or X window position
Return - to plot the data
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp

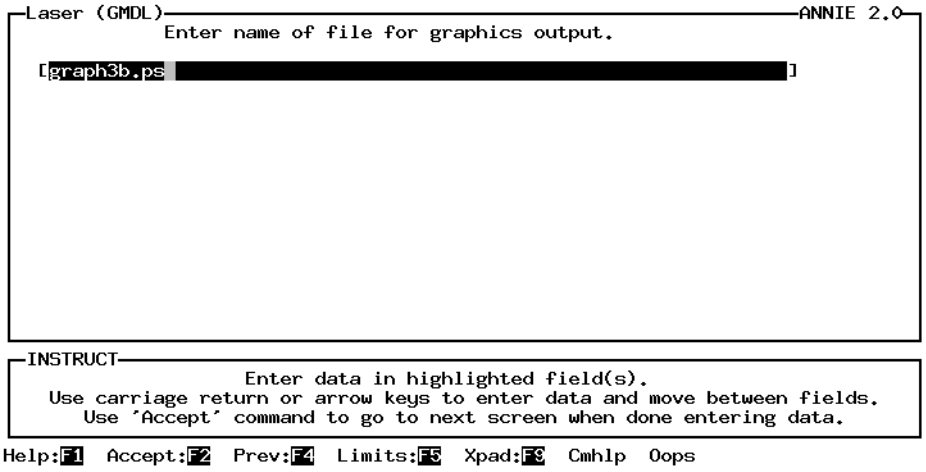

Graphics (G)
ANNIE 2.0
Select a Graphics option:
Input - specify source of data and type of plot
Plot - make the plot
Modify - make detailed modifications to plot specifications
Return - to the Opening screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp

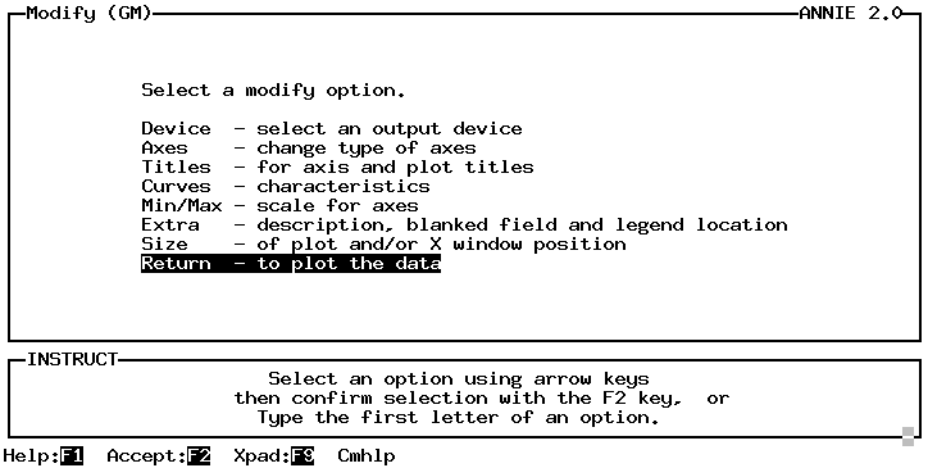


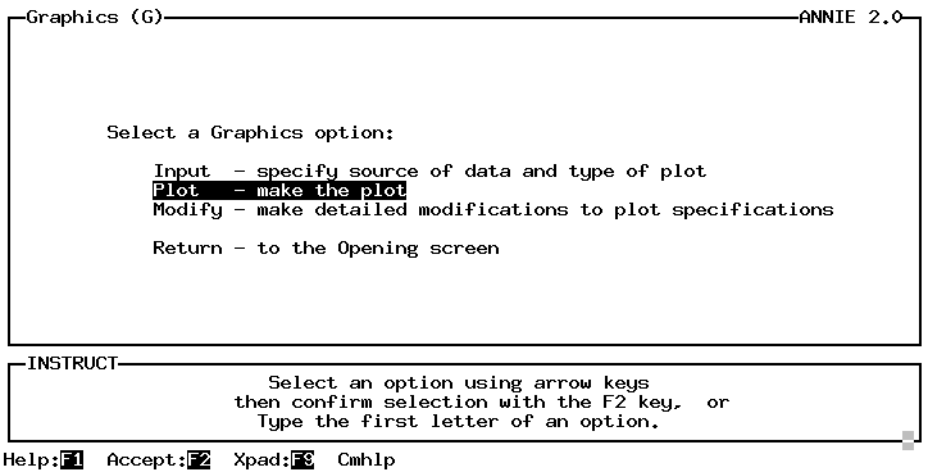
Monthly totals for precipitation and runoff
for March 1956 to September 1957,
Cane Branch, Kentucky


Modify (GM)
ANNIE 2.0
Select a modify option.
Device - select an output device
Axes - change type of axes
Titles - for axis and plot titles
Curves - characteristics
Min/Max - scale for axes
Extra - description, blanked field and legend location
Size - of plot and/or X window position
Return - to plot the data
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp


Device (GMD)
ANNIE 2.0
Select an output device:
Screen - graphics monitor or graphics CRT
Laser - laser printer or dot matrix printer or postscript file
Plotter - pen plotter
Meta - Cgm meta file
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Prev:F4 Xpad:F3 Cmhlp


Laser (GMDL)
ANNIE 2.0
Enter name of file for graphics output.
[graph3b.ps]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F3 Cmhlp Oops


Modify (GM)
ANNIE 2.0
Select a modify option.
Device - select an output device
Axes - change type of axes
Titles - for axis and plot titles
Curves - characteristics
Min/Max - scale for axes
Extra - description, blanked field and legend location
Size - of plot and/or X window position
Return - to plot the data
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp


Graphics (G)
ANNIE 2.0
Select a Graphics option:
Input - specify source of data and type of plot
Plot - make the plot
Modify - make detailed modifications to plot specifications
Return - to the Opening screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp

GRAPHICS INPUT ATTRIBUTES

The ATTRIBUTES option is used to specify an x-y plot of real or integer attributes. See Appendix A for a list of attributes and their types. See table 3 for limitations on the number of data sets and the number of curves that can be included.

Simple addition, subtraction, division, or multiplication may be used to combine attributes before they are plotted. For example, attribute P100. (the 100-year peak flow) could be divided by attribute DAREA (drainage area) to create the new variable peak flow per square mile and that variable could be plotted against the attribute BSLOPE (average basin slope). Another example would be to divide P100. by P2. (the 2-year peak flow) and plot that against one of the basin elevations (ELEV or EL1085).

1. Use the SELECT options Add, Browse, Find, or (and) Input to identify the data sets to be included. See the section on SELECT for more details.

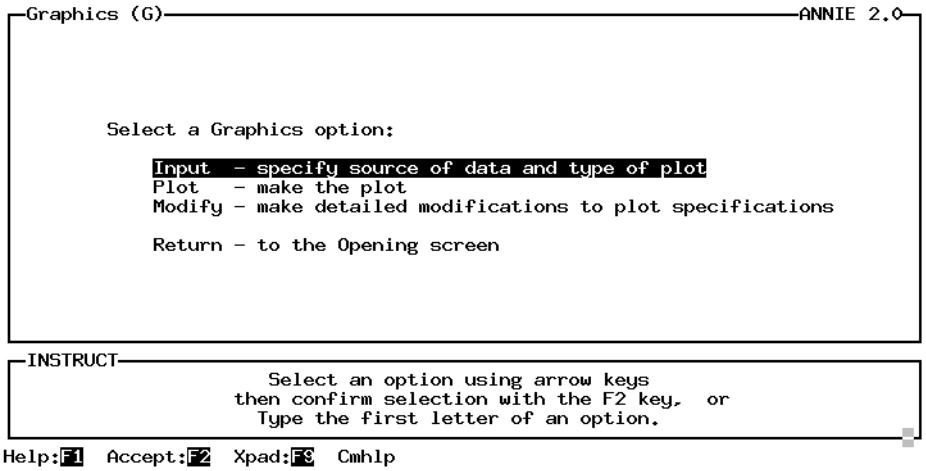
2. Identify the attributes to be included in the plot for each curve.

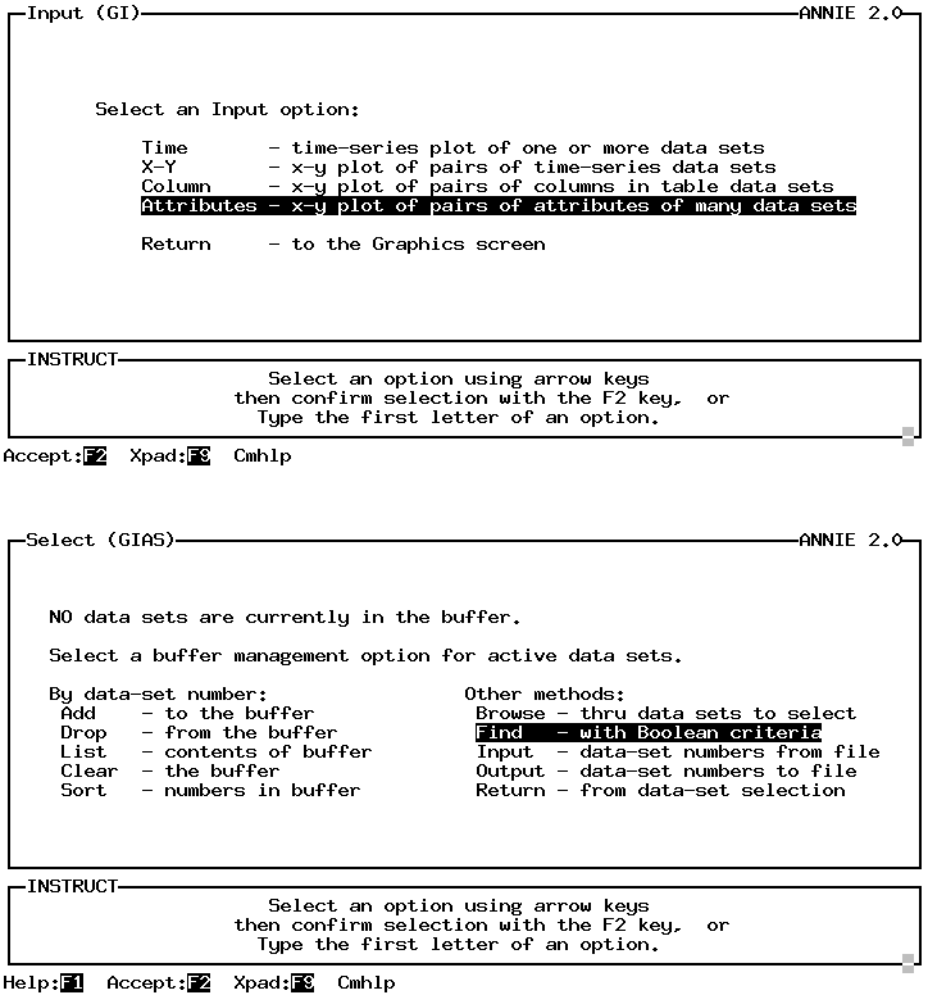
   A. Enter the attributes to be plotted against the y and x axes.

   B. (Optional) Two attributes may be combined using simple addition (+), subtraction (-), division (/), or multiplication (*) to make a new value for plotting. Under the "Optional attribute combinations" columns, enter the arithmetic operation and the name of the second attribute for one or both of the axes.

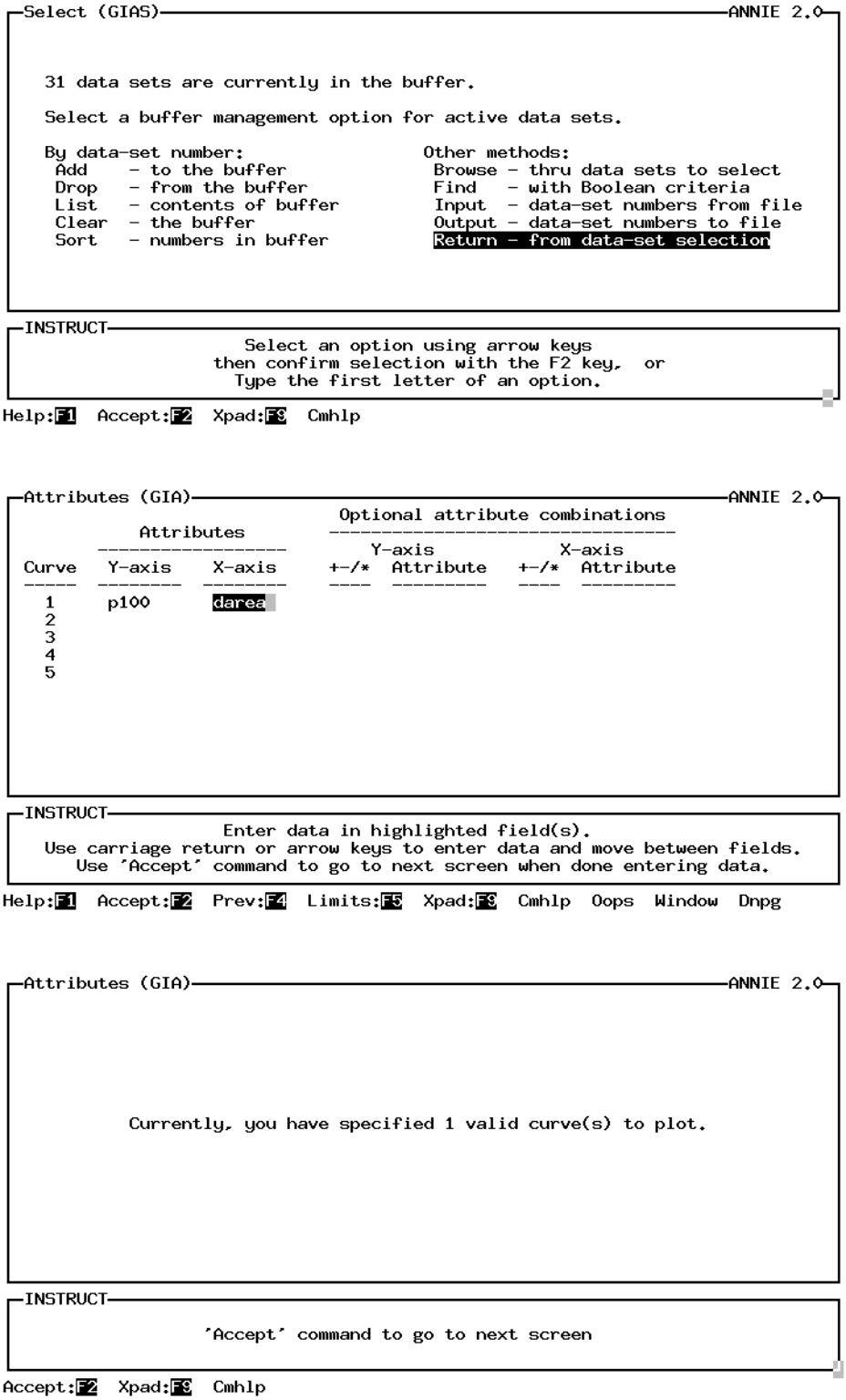
   Note: To get a list of the valid attribute names, press the F1 function key for Help when the cursor is in one of the 'Attributes' columns. Use the down and up arrow keys to scroll through the list of names. For more detailed information on the attributes, see Appendix A. On-line help information on attributes is available at other locations in the program; see the DATA/ATTRIBUTES/Help section for a description.

In the example, the Attributes option was selected from the INPUT menu. The SELECT screens showing the data-set selection of data-sets 101-131 were omitted (see the SELECT section for details). Thirty-one data sets met the selection criteria. One curve was identified to be drawn; attribute P100. will be drawn against the y axis and attribute DAREA will be drawn against the x axis.





Note: Screens showing SELECTion of data-sets 101-131 have been omitted. The ADD, BROWSE, FIND, and INPUT options under SELECT may be used to place the data-set numbers into the data-set buffer. See the SELECT section for descriptions of these options.


Select (GIAS)
ANNIE 2.0
31 data sets are currently in the buffer.
Select a buffer management option for active data sets.
By data-set number:
Add - to the buffer
Drop - from the buffer
List - contents of buffer
Clear - the buffer
Sort - numbers in buffer
Other methods:
Browse - thru data sets to select
Find - with Boolean criteria
Input - data-set numbers from file
Output - data-set numbers to file
Return - from data-set selection
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp
Attributes (GIA)
ANNIE 2.0
Optional attribute combinations
Attributes
Y-axis
X-axis
Curve Y-axis X-axis +-/* Attribute +-/* Attribute
1 p100 darea
2
3
4
5
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F3 Cmhlp Oops Window Dnpg
Attributes (GIA)
ANNIE 2.0
Currently, you have specified 1 valid curve(s) to plot.
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Xpad:F3 Cmhlp

GRAPHICS INPUT TIME

The Time option is used to specify a plot of time-series data. The period of record that can be included in the plot is a function of the plotting time interval, the maximum number of data points that can be included, and the maximum number of curves that can be drawn. These may be system dependent; see table 3 and the documentation that accompanies the program for more specific details. Assuming a maximum of 60,000 points may be plotted, some upper limit combinations include:

3 curves at a 1-day time step for 53 years (~58,075 points)
3 curves at a 1-hour time step for 2 years (~52,600 points)
3 curves at a 5-minute time step for 2 months (~53,600 points)

1 Enter the numbers of the data sets to be included in the plot. (The data-set SELECT option is not available here.)

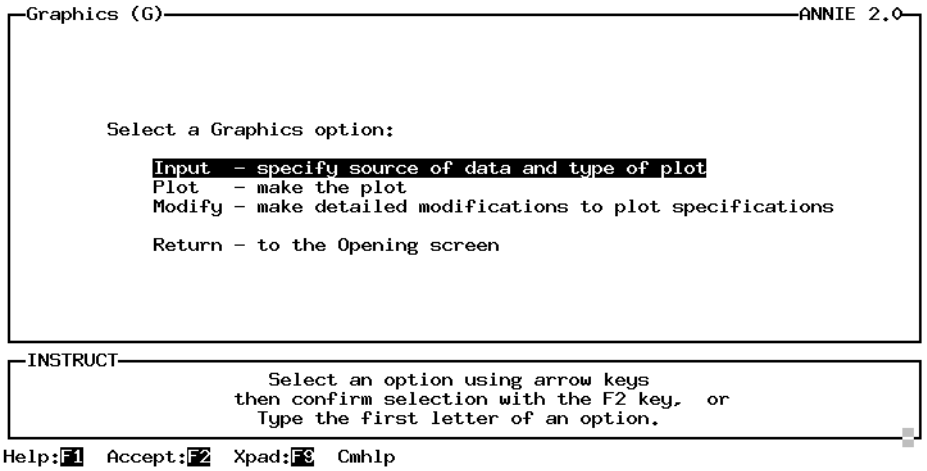
2 Specify the period of record to be included in the plot, the time step for each curve, and any required transformations.

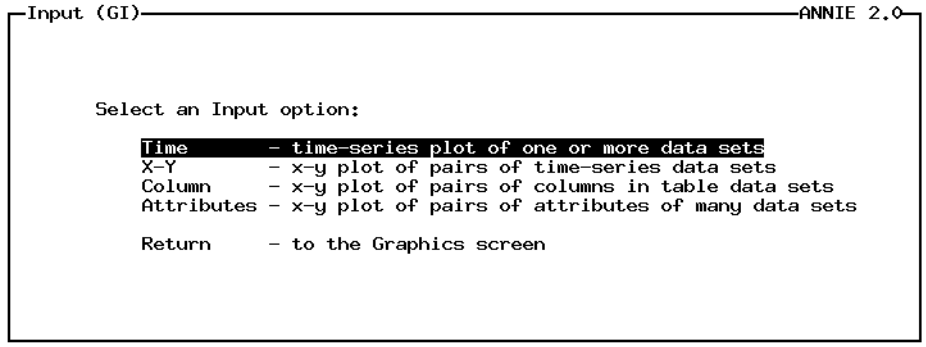
A. By default, the period of record common to all of the selected data sets will be used. It may be modified. The beginning and ending dates and times need to be consistent with the time step.

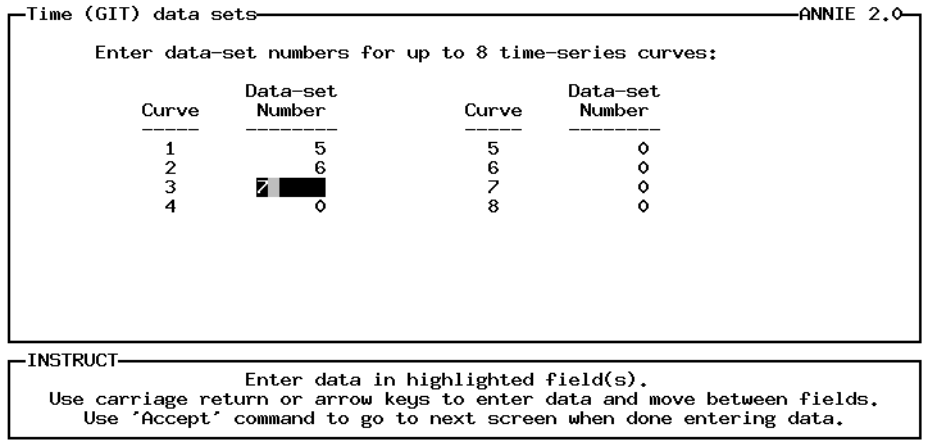
B. For each curve, the default time step is the time step of the data set, as indicated by the attributes TCODE and TSSTEP. This may be modified.

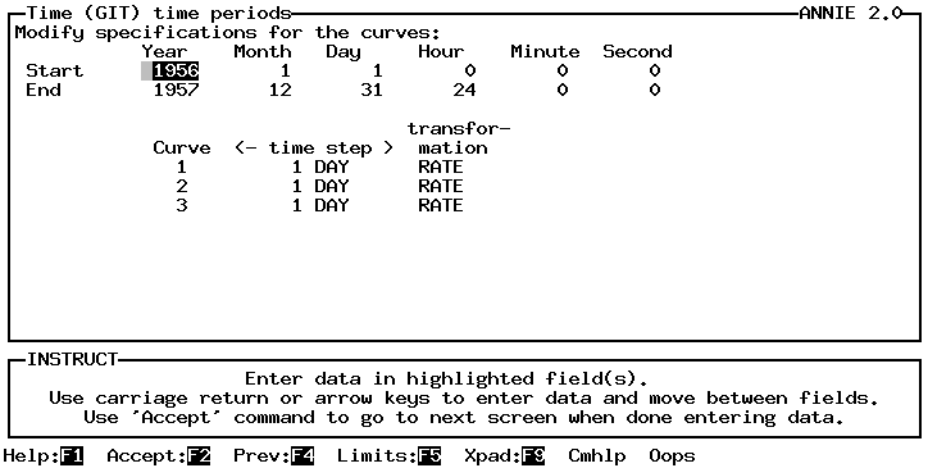
C. For each curve, specify the transformation to be used if the plotting time step is different from the time step of the data set. The default transformation is RATE (average when aggregating, same when disaggregating). The other transformations are TOTAL (sum when aggregating, divide when disaggregating), MAXIMUM (largest value over the time interval), and MINIMUM (smallest value over the time interval).

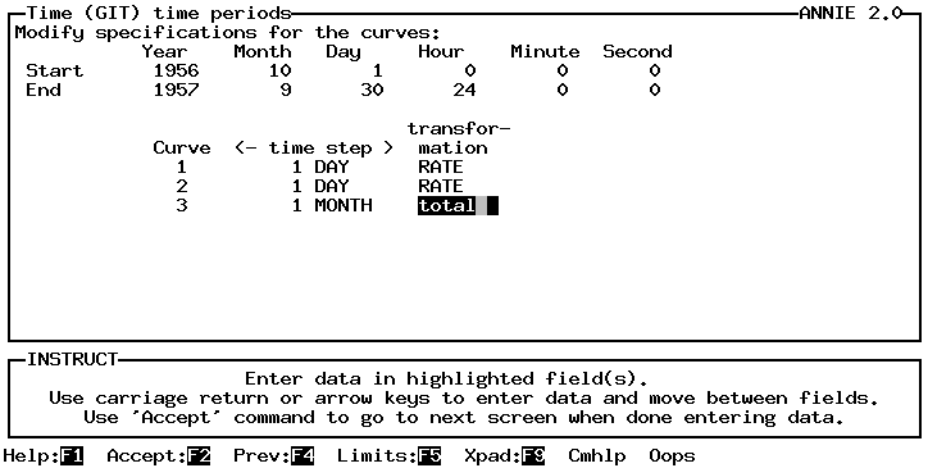
In the example, Time was selected from the INPUT menu. The data-sets 5, 6, and 7 were specified for curves 1, 2, and 3, respectively. The default common period of record was changed to the water year 1957. The time step of the third curve was changed from 1 DAY to 1 MONTH, with the transformation TOTAL to be used.




Input (GI)
ANNIE 2.0
Select an Input option:
Time - time-series plot of one or more data sets
X-Y - x-y plot of pairs of time-series data sets
Column - x-y plot of pairs of columns in table data sets
Attributes - x-y plot of pairs of attributes of many data sets
Return - to the Graphics screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Xpad:F9 Cmhlp


Time (GIT) data sets
ANNIE 2.0
Enter data-set numbers for up to 8 time-series curves:
Curve Data-set Number
1 5
2 6
3 7
4 0
Curve Data-set Number
5 0
6 0
7 0
8 0
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops


Time (GIT) time periods
ANNIE 2.0
Modify specifications for the curves:
Year Month Day Hour Minute Second
Start 1956 1 1 0 0 0
End 1957 12 31 24 0 0
Curve <- time step > transfor-mation
1 1 DAY RATE
2 1 DAY RATE
3 1 DAY RATE
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops


Time (GIT) time periods
ANNIE 2.0
Modify specifications for the curves:
Year Month Day Hour Minute Second
Start 1956 10 1 0 0 0
End 1957 9 30 24 0 0
Curve <- time step > transfor- mation
1 1 DAY RATE
2 1 DAY RATE
3 1 MONTH total
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops

GRAPHICS
INPUT
X-Y

The X-Y option is used to specify an x-y plot of time-series data. More than one pair of time series may be included and the period of record for each pair of time series may be different. The total number of data points that can be drawn is a function of the number of data sets and the time step of the curves. These may be system dependent; see table 3 and the documentation that accompanies the program for more specific details.

1 Enter the numbers of the pairs of data sets to be included in the plot. (The data-set SELECT option is not available here.)

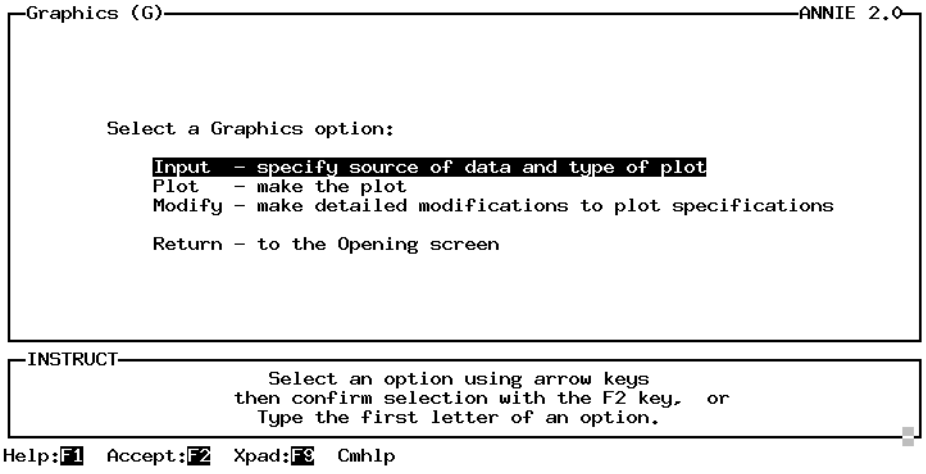
2 For each curve, specify the period(s) of record, time step(s), and any required transformations.

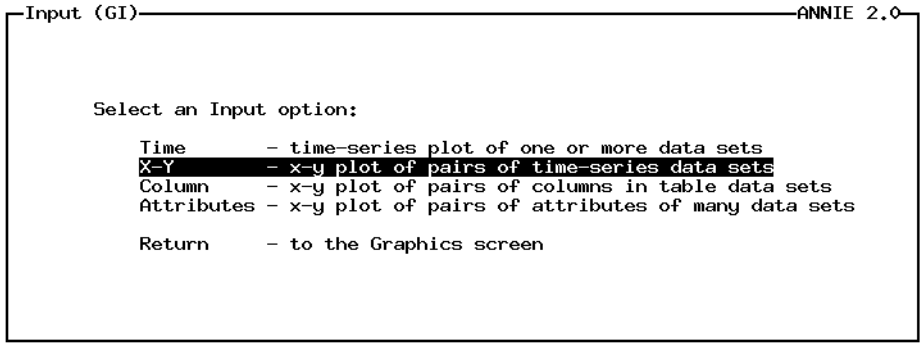
A. For each curve, the default period of record will be the period common to the two time series. The beginning and ending dates and times need to be consistent with the time step. The same or a different period may be specified for each curve.

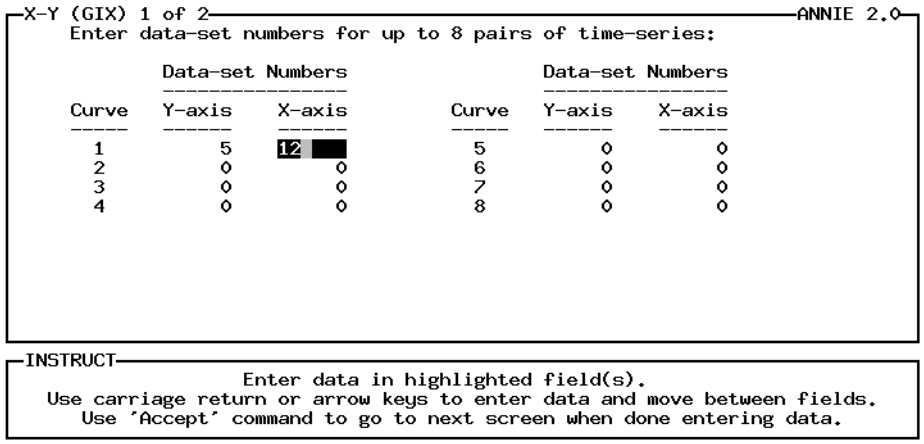
B. For each curve, the default time step is the smallest time step evenly divisible by the time steps of the two time series as indicated by the attributes TCODE and TSSTEP. Different time steps may be used for each curve.

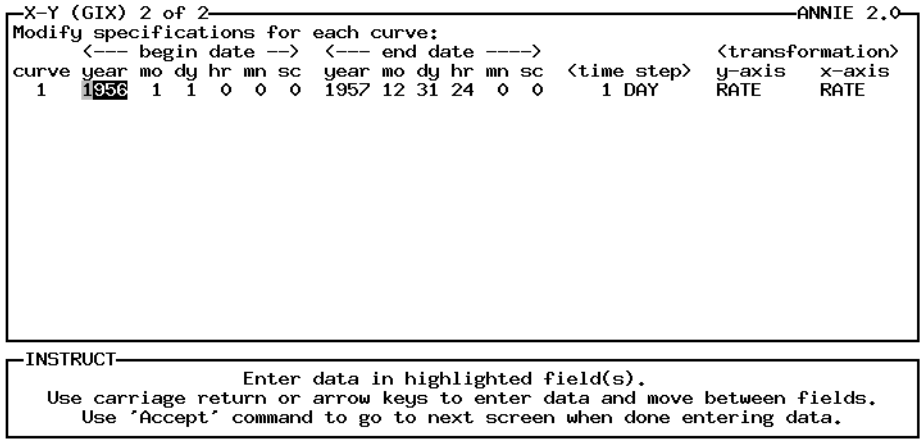
C. For each curve, specify the transformation to be used for both of the time series if the plotting time step is not the same as the time step(s) of the time series. The default transformation is RATE (average when aggregating, same when disaggregating). The other transformations are TOTAL (sum when aggregating, divide when disaggregating), MAXIMUM (largest value over the time interval), and MINIMUM (smallest value over the time interval).

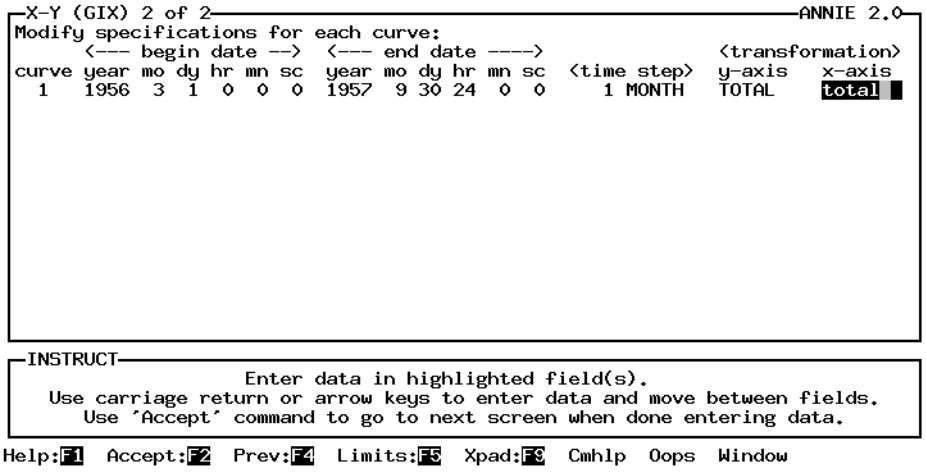
In the example, X-Y was selected from the INPUT menu. Data-sets 5 and 12 were specified for curve 1, with data-set 5 to be drawn against the y axis and data-set 12 to be drawn against the x axis. The default common period of record was shortened to the period March 1, 1956, through September 30, 1957. The time step for the plot was changed from 1 DAY to 1 MONTH, using a TOTAL transformation for both time series.




Input (GI)
ANNIE 2.0
Select an Input option:
Time - time-series plot of one or more data sets
X-Y - x-y plot of pairs of time-series data sets
Column - x-y plot of pairs of columns in table data sets
Attributes - x-y plot of pairs of attributes of many data sets
Return - to the Graphics screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Accept:F2 Xpad:F9 Cmhlp


X-Y (GIX) 1 of 2
ANNIE 2.0
Enter data-set numbers for up to 8 pairs of time-series:
Data-set Numbers
Data-set Numbers
Curve Y-axis X-axis Curve Y-axis X-axis
1 5 12 5 0 0
2 0 0 6 0 0
3 0 0 7 0 0
4 0 0 8 0 0
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops


X-Y (GIX) 2 of 2
ANNIE 2.0
Modify specifications for each curve:
<--- begin date --> <--- end date ----> <transformation>
curve year mo dy hr mn sc year mo dy hr mn sc <time step> y-axis x-axis
1 1956 1 1 0 0 0 1957 12 31 24 0 0 1 DAY RATE RATE
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops Window


X-Y (GIX) 2 of 2
ANNIE 2.0
Modify specifications for each curve:
<--- begin date --> <--- end date ----> <transformation>
curve year mo dy hr mn sc year mo dy hr mn sc <time step> y-axis x-axis
1 1956 3 1 0 0 0 1957 9 30 24 0 0 1 MONTH TOTAL total
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops Window

GRAPHICS MODIFY AXES

The Axes option is used to MODIFY the types of axes needed for the plot. The left y axis is included for all plot types; it may be either arithmetic or logarithmic. The x axis for the Attributes and X-Y time plots may be arithmetic or logarithmic. The optional right y axis may be included for all plot types; it may be either arithmetic or logarithmic. The optional auxiliary arithmetic axis is available for the Time-series plots.

Note: If an axis type is changed or an axis is added or an axis is removed, the Curves and Min/max menus should be selected to make and verify the appropriate changes.

1 Specify the types of axis to be included.

A. By default, the left y axis is ARITHmetic. It may be either ARITHmetic or LOGarithmic.

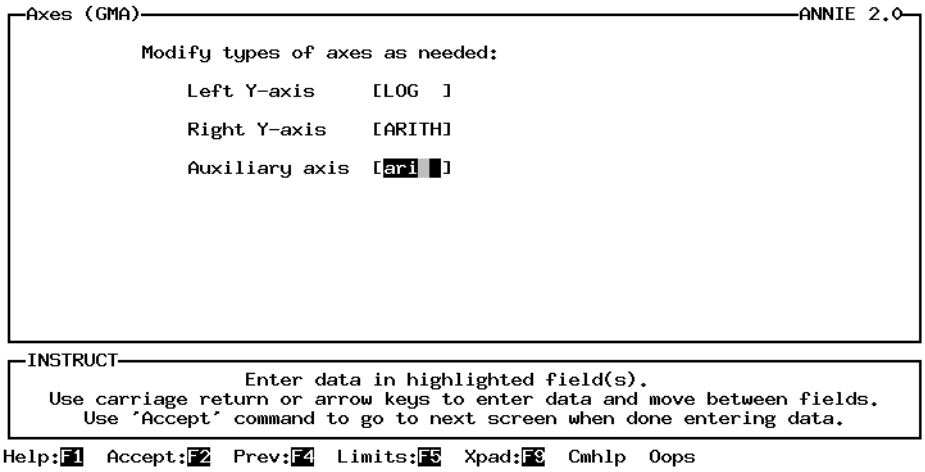
B. The x axis is included for Attributes and X-Y plots only. By default, the x axis is ARITHmetic. It may be either ARITHmetic or LOGarithmic.

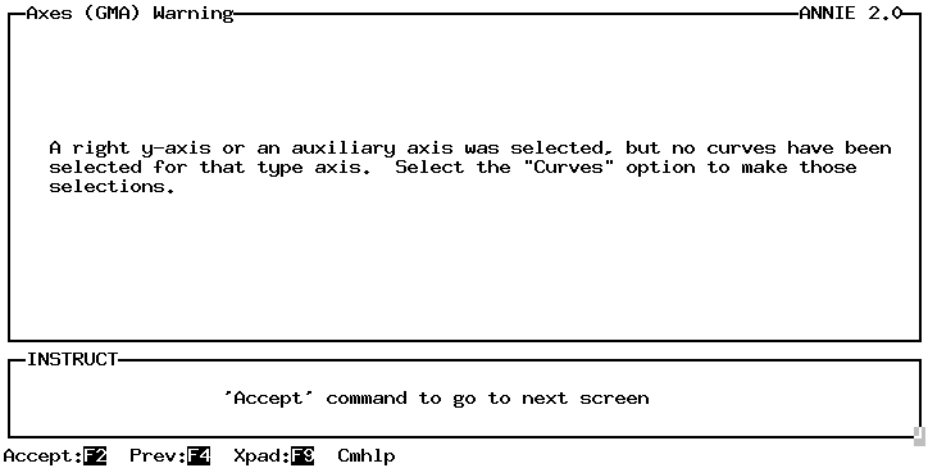
(Optional) By default, there is NO right y axis. It may be NO, ARITHmetic, or LOGarithmic. It is available for all plot types.

C. (Optional) The auxiliary axis is available for Time-series plots only. By default, there is NO auxiliary axis. It may be either NO or ARITHmetic.

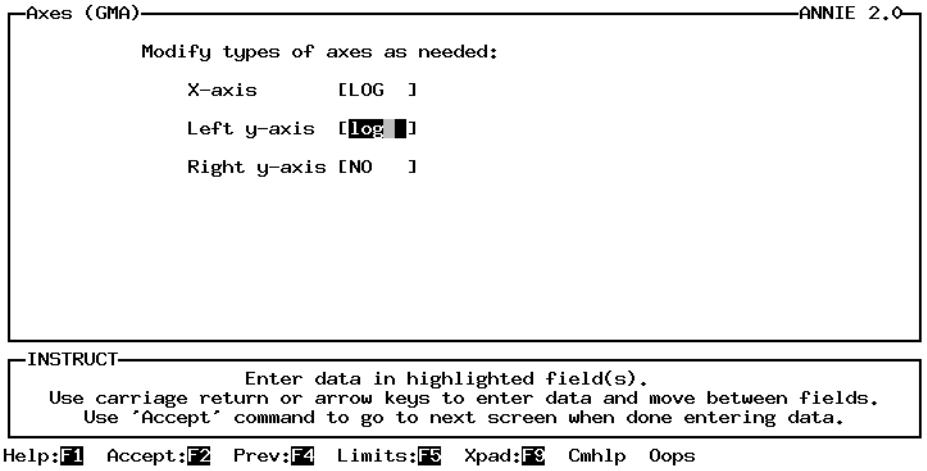
There are two examples. The first shows the Axes screen for plots of type Time. The available axis are the left y axis modified to LOGarithmic, the right y axis modified to ARITHmetic, and the auxiliary axis modified to ARITHmetic. Because this represents a change in the axis, a warning message is printed, suggesting that the Curves need to be modified. The second example shows the Axes screen for plots of type Attributes and X-Y. The available axis are the x axis modified to LOGarithmic, the left y axis modified to LOGarithmic, and the right y axis left at NO.

Screen for time-series plot





Screen for Attribute and X-Y plot



GRAPHICS MODIFY CURVES

The Curves option is used to MODIFY the physical appearance of the curves on the plot. If there is more than one curve included in the plot, the label for the legend is also modified here. The appearance, order, and content of the screens will vary with the type of plot and the number of curves included in the plot. The available line types, colors, symbols, and shade patterns will vary, depending on the graphics implementation.

For Time plots, the space below a curve may be filled with a shade pattern. The curves are listed in the Curves screen in the same order they were selected (see GRAPHICS/ INPUT/Time); this is the drawing order and it cannot be changed here. The filling is done in the order the curves are drawn. The shading will paint over anything that may have been drawn previously, so the curve with the highest magnitudes should be drawn first and the curve with the lowest magnitudes should be drawn last if more than one curve is to be drawn.

1 Specify the characteristics of the curve(s). (Note: The order will vary by plot type.)

A. Line type may be SOLID, DASH, DOT, DASHDOT, or NONE. Additional line types may be available for some installations of the program. The default is SOLID. When more than one curve is included, each curve will be defaulted to a different line type. Execute Help (F1) to get a list of the available line types.

B. The color to be used may be specified for each curve. The available colors will depend on the version of the program. At a minimum there should be 16 colors; some installations may have many more. The default color is usually WHITE. The same color will be used to draw the line, the symbol, and for shading. Execute Help (F1) to get a list of the available colors.

C. The symbol to be used may be specified for each curve. The available symbols will depend on the version of the program. At a minimum there should be about 20 symbols; some installations may have many more. Execute Help (F1) to get a list of the available symbols. The default for Time plots is NONE. For X-Y and Attribute plots, the default for the first curves is usually a circle (O), with a different symbol for each additional curve.

D. (Time plot only) The shade pattern may be NONE, HOLLOW, SOLID, HORIZONtal, VERTICAL, or BOX. Additional shade patterns may be available on some installations of the program. The default is NONE. Execute Help (F1) to get a list of the available shade patterns.

E. (Time plot only) Each time curve may be specified as either MEAN over the time step (produces a stairstep type of plot) or a POINT at the end of the time step (may produce a spikey line or, for closely spaced data points, a smooth line). The default is MEAN.

F. (Time plot only) Identify which axis each curve should be plotted against. The default is LEFT y axis. Also available are the RIGHT y axis and the AUXiliary axis.

(Attributes plot only) Identify which axis each of the attributes in the curve should be plotted against.

(X-Y plot only) Identify which axis each of the time series in the curve should be plotted against.

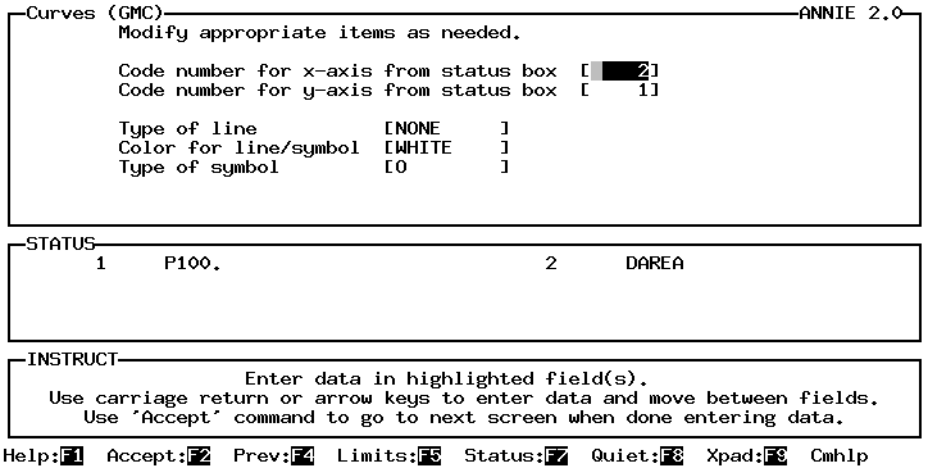
G. (2 or more curves) Specify the text to be used for the legend. For Time plots, this defaults to 'Data set' plus the number of the data set containing the time series. For Attributes plots, this defaults to the names of the attributes for the curve. For X-Y plots, this defaults to the value of TSTYPE for each of the curves. The label may be any text string, up to 20 characters in length.

There are three examples. The first example shows the Curves screen for a plot of type Attributes containing one curve. A list of the selected attributes, each with an associated code number, is displayed in the STATUS window. The second and third lines of the dialogue window indicate that attribute DAREA is to be plotted against the x axis and attribute P100. is to be plotted against the y axis. The curve will be drawn without (NONE) connecting lines in the color WHITE with the symbol O (circle).

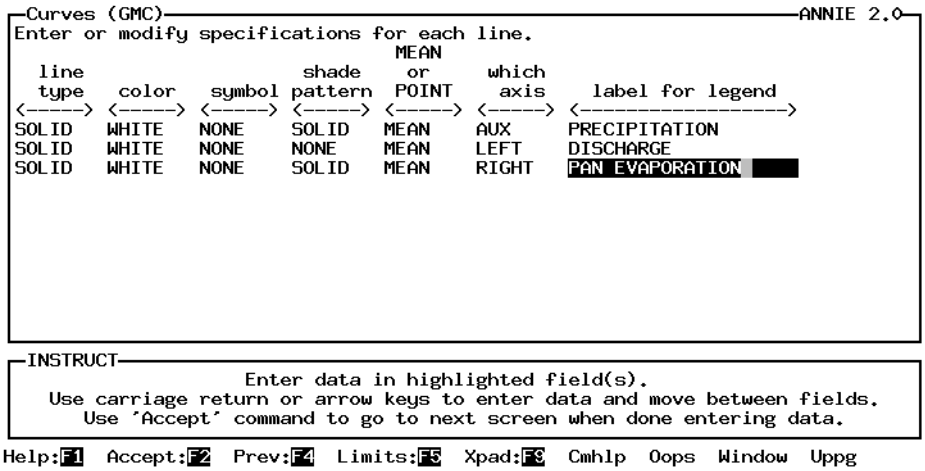
The second example shows the Curves screen for a plot of type Time containing three curves. All curves are being drawn with a SOLID line in the color WHITE with no (NONE) symbol as MEAN values over the time step. The first curve, precipitation, is being drawn on the AUXiliary y axis with a shade pattern of SOLID. The second curve, discharge, is being drawn against the LEFT y axis with no (NONE) fill pattern. The third curve, pan evaporation, is being drawn against the RIGHT y axis with a SOLID shade pattern.

The third example shows the Curves screen for a plot of type X-Y time series containing one curve. A list of the selected data sets, each with an associated code number, is displayed in the STATUS window. The second and third lines of the dialogue window indicate that data-set 12 is to be plotted against the x axis and that data-set 5 is to be drawn against the y axis. The curve will be drawn with no (NONE) connecting lines in the color WHITE with the symbol SQUARE.

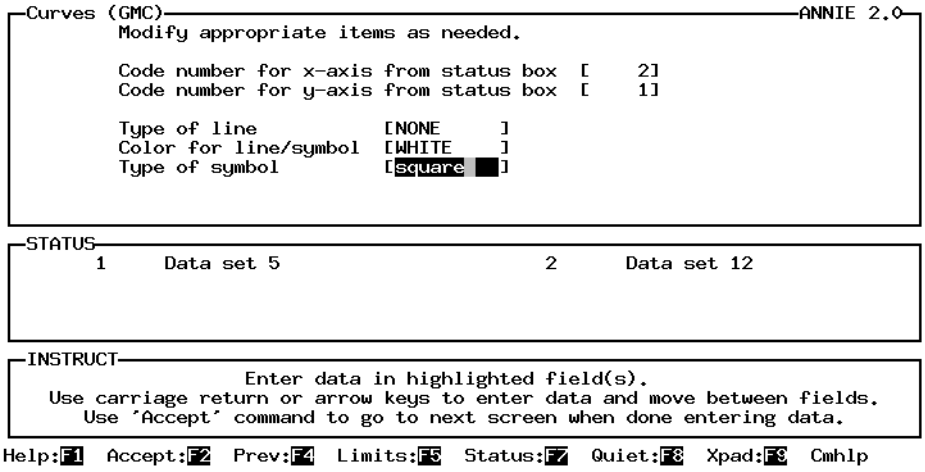
Screen for Attribute plot



Screen for Time-series plot



Screen for X-Y plot



GRAPHICS MODIFY DEVICE

The Device option is used to modify the destination for the output graphics. The output devices available to the program are dependent on the graphics implementation. A default device is provided for each computer system. See the documentation that accompanies the program for the system defaults. The defaults may be modified by including a TERM.DAT file with values for parameters GKSDIS, GKSPRT, GKSPLT, and GKSMET. Descriptions of these parameters are found in Appendix B.

1 Specify the type of output device to be used. The highlighted device is the device currently active.

A. Select Screen for graphics output to the monitor.

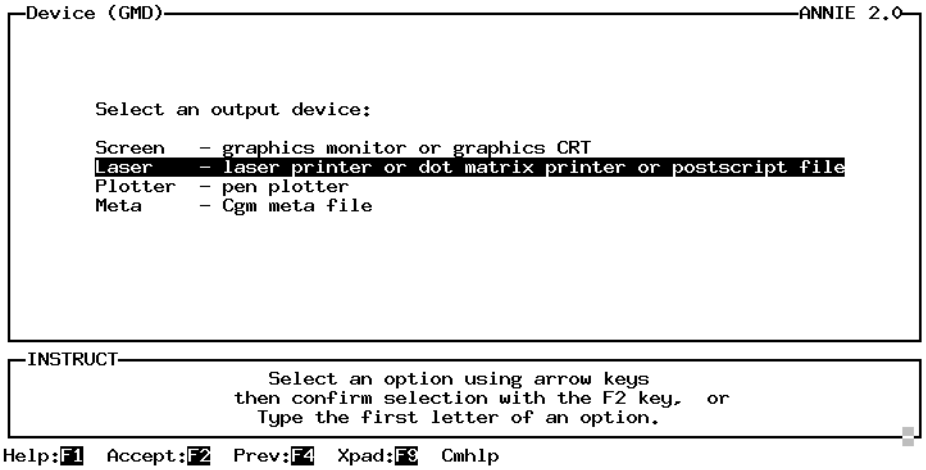
B. Select Laser to output graphics to a printer device. This is implementation specific. In most cases the output may be written to a postscript file that can be spooled later to a printer. In other cases it may be sent directly to a printer.

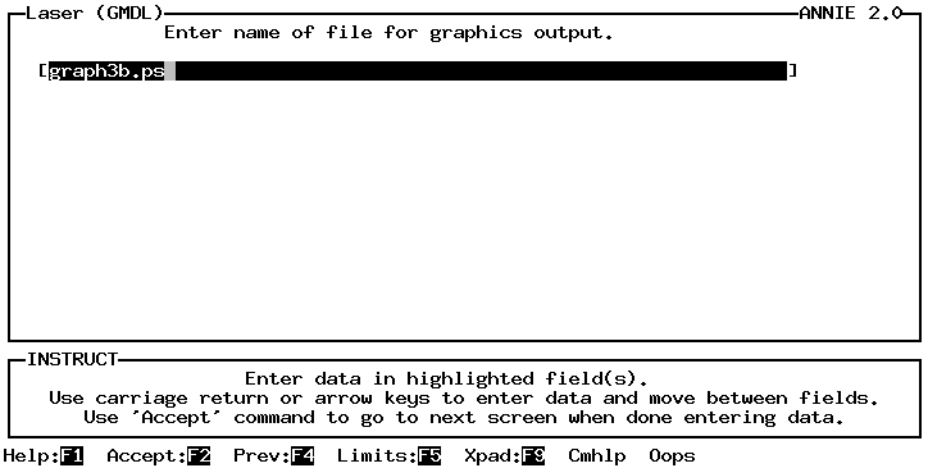
C. Select Plotter to output graphics to a pen plotter. This is implementation specific. In most cases the output may be written to a file and plotted later. In other cases it may be sent directly to a plotter.

D. Select Meta to output graphics to a metafile. This is implementation specific. For some installations, the Meta option will not work.

2 (device and system dependent) Enter a file name for the graphics output. Any name valid on the system may be used, up to 64 characters long. However, it may be helpful to use a consistent naming convention for the files. The suffix ps is recommended for postscript files and hpgl or hpg for some plotter files.

In the example, Laser has been selected to generate a postscript file. The file name graph3b.ps was entered.




Laser (GMDL)
ANNIE 2.0
Enter name of file for graphics output.
[graph3b.ps
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F8 Cmhlp Oops

GRAPHICS MODIFY EXTRA

The Extra option is used to Add a block of text to the plot and to reLocate the legend in the plotting field. Up to 120 characters of extra text may be added as a block to the graph.

1 Select Add to include an extra block of text in the plotting field.

A. Specify the location for the upper left corner of the text block. Location is specified as fractions of the axes lengths.

B. Specify the size of the text block. A total of 120 characters, including blanks, may be included in the text. The characters per line multiplied by the number of lines must be less than or equal to 120.

C. Enter the text for the block.

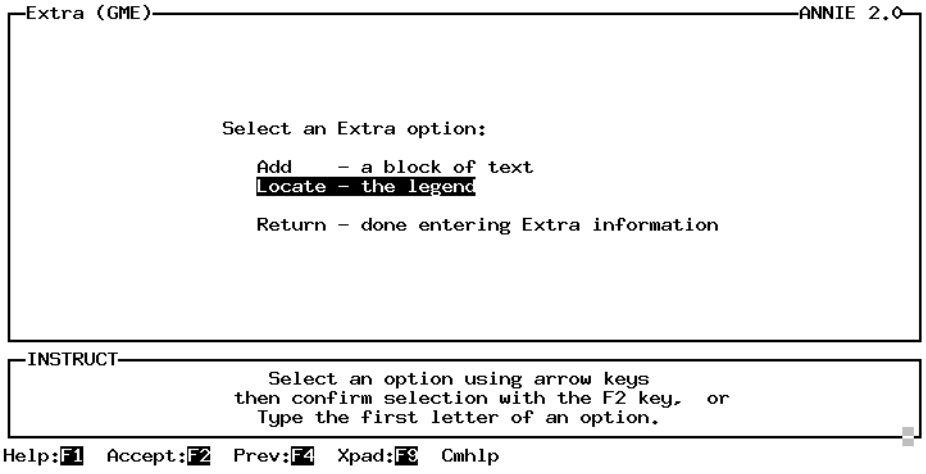
2 Select Locate to change the location of the legend in the plotting field. The legend will be included if there are two or more curves. There is no legend for one curve.

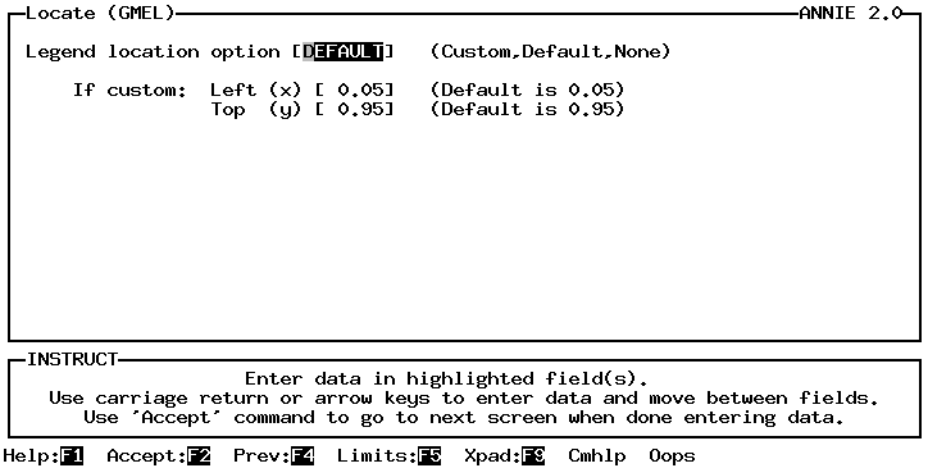
A. There are three options for the location of the legend—CUSTOM - user specified, DEFAULT - upper left of the plotting field, and NONE - not included.

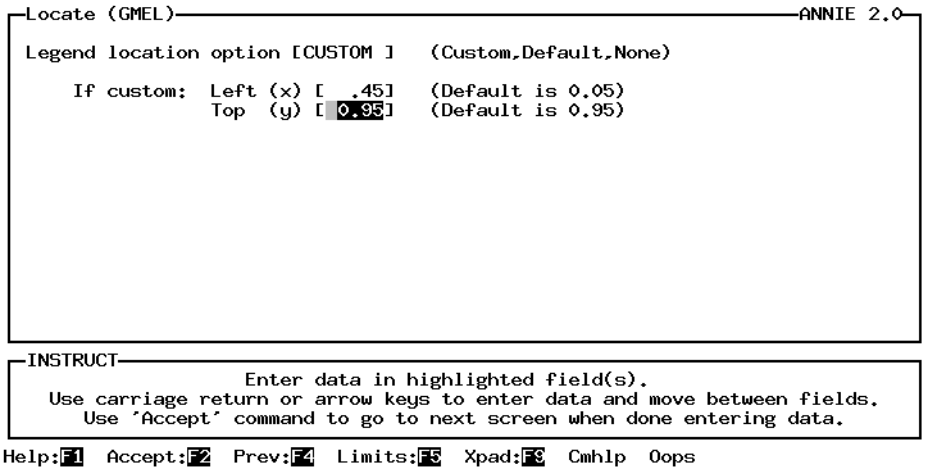
B. (for CUSTOM) Specify the location for the upper left corner of the legend. Location is specified as fractions of the axes lengths.

Note: See GRAPHICS/MODIFY/Curves to modify the actual text of the legend.

In the example, the location of the legend is moved from the DEFAULT upper left location of (.05, .95) to the CUSTOM upper right location of (.45, .95).




Locate (GMEL)
ANNIE 2.0
Legend location option [DEFAULT] (Custom,Default,None)
If custom: Left (x) [0.05] (Default is 0.05)
Top (y) [0.95] (Default is 0.95)
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops


Locate (GMEL)
ANNIE 2.0
Legend location option [CUSTOM] (Custom,Default,None)
If custom: Left (x) [.45] (Default is 0.05)
Top (y) [0.95] (Default is 0.95)
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops

GRAPHICS MODIFY MINMAX

The Min/max option is used to MODIFY the scales for arithmetic and logarithmic axes. For arithmetic axes, the minimum and maximum values for the scale and the frequency of tic marks can be entered. For logarithmic axes, the minimum and maximum values, in whole cycles, may be entered. Four options are available for handling off-scale values.

Notes: This option should be selected after the Axes and Curves options have been selected. The time-series axis is determined by the time span being plotted and cannot be modified.

1 For each active arithmetic and logarithmic axes, the minimum and maximum scale values may be modified. By default, the program calculates minimum and maximum values based on the range of the data values. The range of the data is shown on the line labeled "data:".

2 For each active arithmetic axes, the number of tic intervals may be modified. Each tic mark will be labeled on the axes.

3 The action to be taken for off-scale data values may be modified. The options are CLIP - draws a line to the border or (and) ignores symbols, SKIP - breaks line and restarts with next point within the scale limits with symbols ignored, ARROW - breaks line and draws arrow where point goes off scale, and IGNORE - assumes point does not exist.

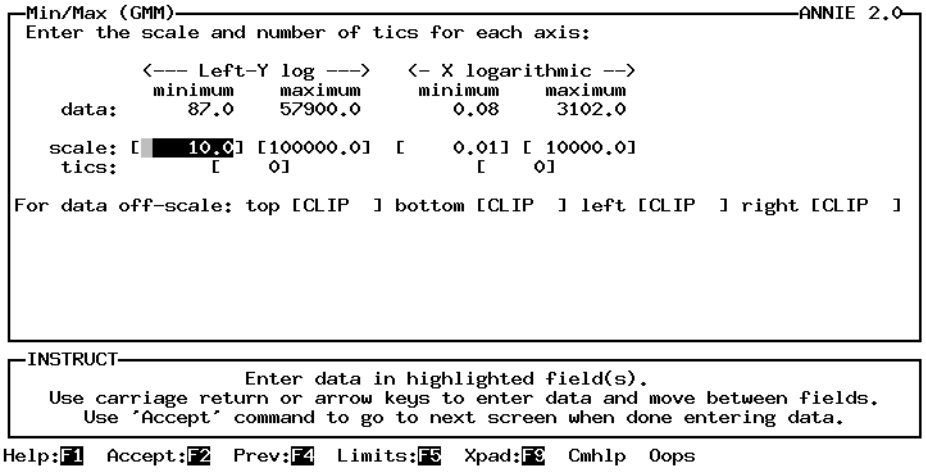
A. Specify action to be taken for data values off the top or the bottom of the y scales. This applies to the left, right, and auxiliary y axes. The default is CLIP.

B. (Attributes and X-Y plots) Specify the action to be taken for data values off the left or right of the x scale.

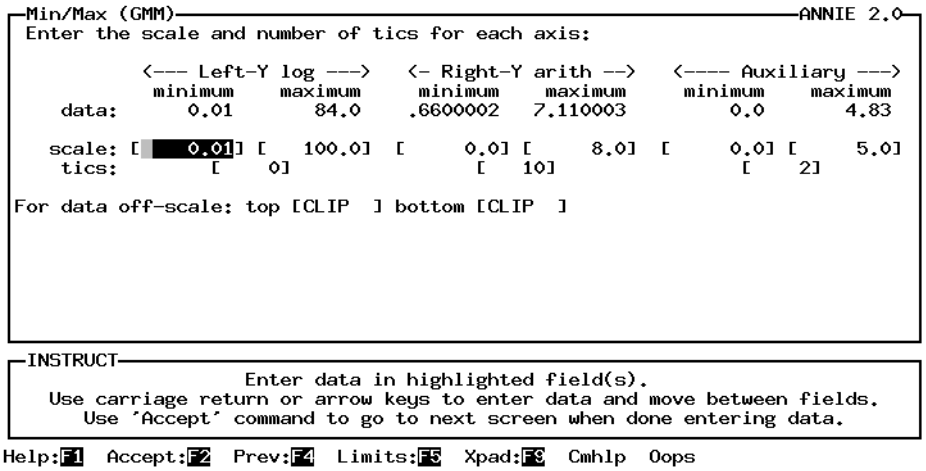
There are two examples. The first shows the Min/max screen for an Attributes plot with logarithmic left y axis and logarithmic x axis. There is no right y axis. The data values range from 87.0 to 57900.0 for the left y axis, with the scale set at 10 to 100000.0. The data values for the x axis range from 0.08 to 3102.0, with the scale set at 0.01 to 10000.0 Because both axes are logarithmic, the TICS fields are set to 0; tic marks will be drawn and labeled at each log cycle. All off-scale data values will be CLIPped. For a curve with line type NONE, CLIP means the symbol will not be drawn for data points off scale. With the data ranges and the specified scale ranges, no data points are off scale.

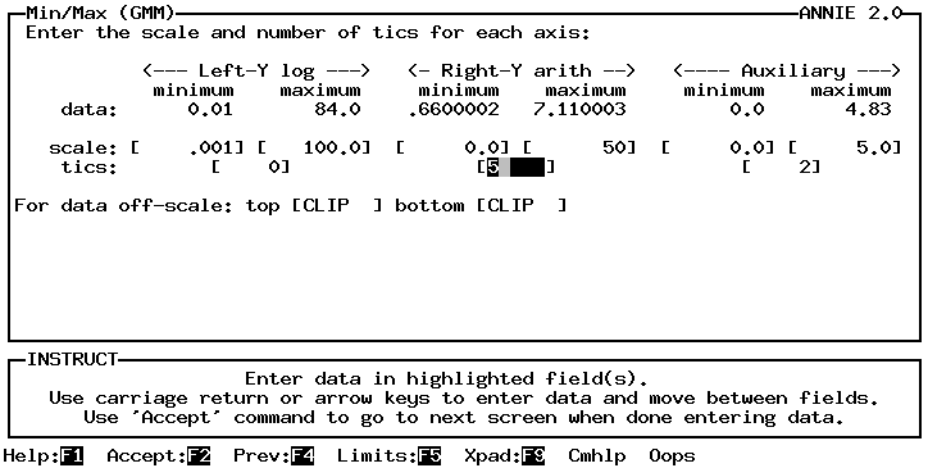
The second example shows the Min/max screen for a Time-series plot containing a logarithmic left y axis, an arithmetic right y axis, and an auxiliary axis. The logarithmic left y axis shows a data range of 0.01 to 84.0; the scale defaulted to 0.01 to 100.0, with the minimum modified to .001. The arithmetic right y axis shows a data range of 0.66 to 7.11, the scale defaulted to 0.0 to 8.0, and this was modified to 0.0 to 50.0 with five tic marks. The auxiliary axis shows a data range of 0.0 to 4.83. The scale defaulted to 0.0 to 5.0; this was left unchanged. All off-scale data values will be CLIPped. For data points connected with a line, CLIP means a line will be drawn to the appropriate scale limit from the last in-scale data value and will be drawn from off scale to the next in-scale data value. With the data ranges and the specified scale ranges, no data points are off scale. The Min/max screen for an X-Y plot is the same as the screen for Attributes plots.

Screen for Attribute plot



Screen for Time-series plot





GRAPHICS MODIFY SIZE

The Size option is used to MODIFY the size and location of the plot within the plotting field. All sizes are relative and the actual sizes are adjusted for the output device. The plotting space, axes lengths, and location of the origin are specified in inches. The size of the lettering may also be modified. For X-windows applications, the size of the graphics window may be modified. Checks are made and warnings provided when the letter size or axis lengths and origin are too large.

1 Specify the sizes for the plotting field and lettering.

A. The vertical (y) and horizontal (x) lengths for the plotting space may be modified.

B. The y- and x-axes lengths may be modified. They must be smaller than the plotting space to provide room for the axes labels and titles.

C. The location of the origin, relative to the lower left corner of the plotting space, may be modified. Enough space must be allowed for the axes labels and titles.

D. The lettering size may be modified. Changes in lettering size may require changes in axes lengths or the location of the origin.

2 (X windows only) The position and size of the X window that will be used for the graphics may be modified. By default, the window is positioned in the upper left quarter of the monitor.

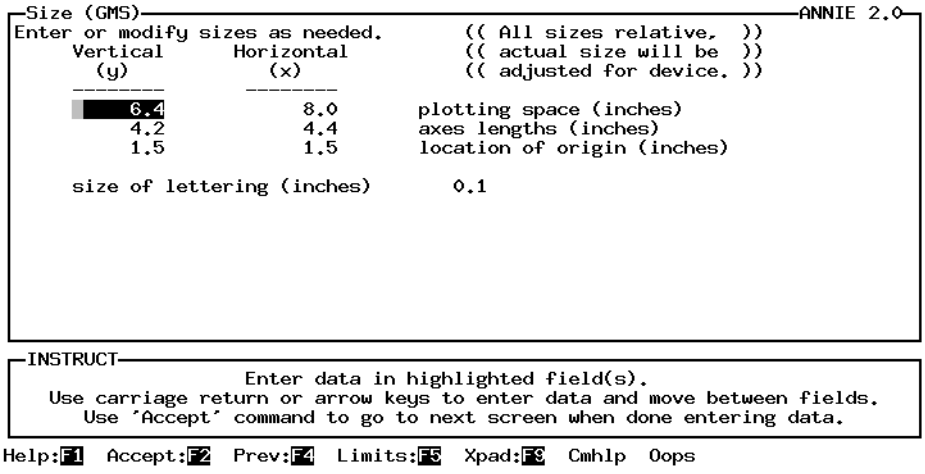
A. By default, the left side of the graphics window is located at the left edge (0.0) of the monitor. The location is specified as a fraction of the screen width, with 0.0 being the left edge of the monitor and 1.0 being the right edge.

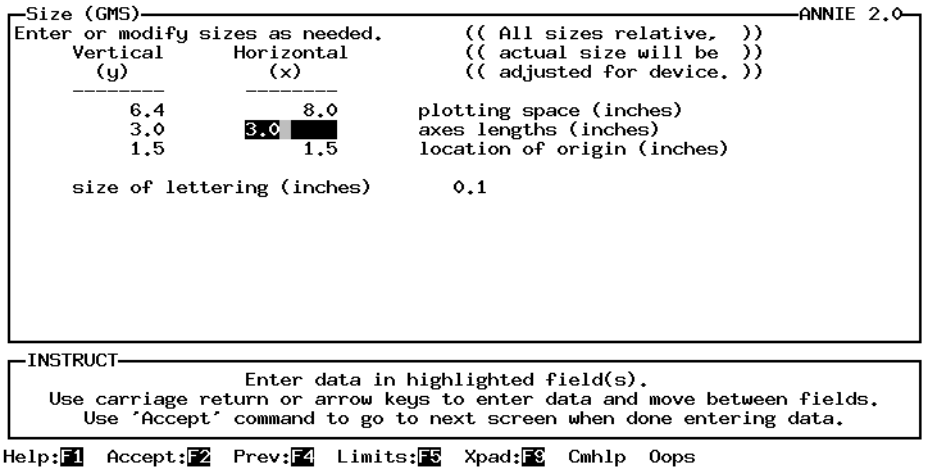
B. By default, the top of the graphics window is located at the top edge (0.0) of the monitor. The location is specified as a fraction of the screen height, with 0.0 being the top edge and 1.0 being the bottom edge.

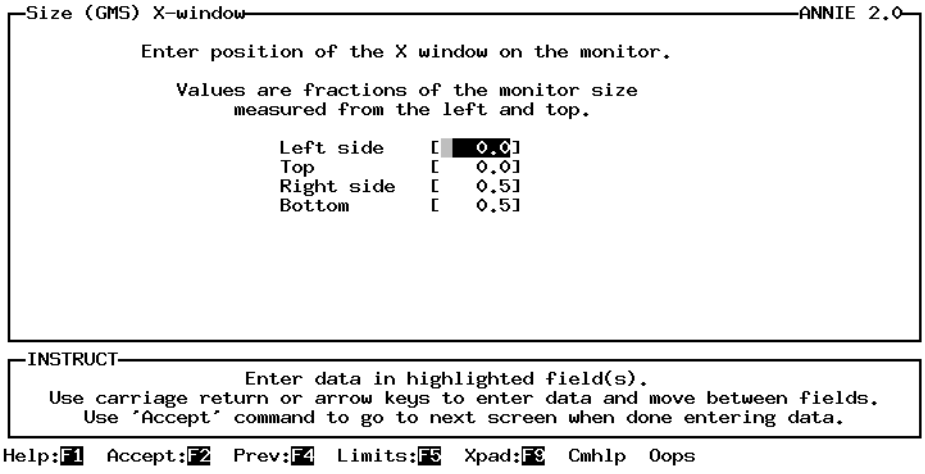
C. By default, the right side of the graphics window is located in the middle (0.5) of the monitor. The location is specified as a fraction of the screen width, with 0.0 being the left edge of the monitor and 1.0 being the right edge.

D. By default, the bottom of the graphics window is located in the middle (0.5) of the monitor. The location is specified as a fraction of the screen height, with 0.0 being the top edge and 1.0 being the bottom edge.

In the example, the y-axis length is changed from 4.2 to 3.0 and the x-axis length is changed from 4.4 to 3.0. The plotting space (y - 6.4 and x - 8.0) and the location of the origin (1.5,1.5) and the lettering size (0.1) were left unchanged. The X-window size was left unchanged.


Size (GMS)
ANNIE 2.0
Enter or modify sizes as needed.
((All sizes relative,))
((actual size will be))
((adjusted for device.))
Vertical (y)
Horizontal (x)
6.4 8.0 plotting space (inches)
4.2 4.4 axes lengths (inches)
1.5 1.5 location of origin (inches)
size of lettering (inches) 0.1
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops


Size (GMS)
ANNIE 2.0
Enter or modify sizes as needed.
((All sizes relative,))
((actual size will be))
((adjusted for device.))
Vertical (y)
Horizontal (x)
6.4 8.0 plotting space (inches)
3.0 3.0 axes lengths (inches)
1.5 1.5 location of origin (inches)
size of lettering (inches) 0.1
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops


Size (GMS) X-window
ANNIE 2.0
Enter position of the X window on the monitor.
Values are fractions of the monitor size
measured from the left and top.
Left side [0.0]
Top [0.0]
Right side [0.5]
Bottom [0.5]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Xpad:F9 Cmhlp Oops

GRAPHICS MODIFY TITLES

The Titles option is used to MODIFY the titles for the axes and for the plot. The titles available depend on the type of plot being drawn and the axis selected for the plot. See the MODIFY/Curves option to modify the text of the legend.

Note: This option should be selected after the Axes option.

1 Modify the titles as needed.

A. The title for the plot defaults to blanks. Up to 3 lines of 78 characters each may be included in the title. The title appears at the bottom of the plotting field. The first line of the title is centered under the x axis. The second and third lines (when included) are left justified under the first line of the title.

B. The left y-axis title may be 1 or 2 lines, each up to 40 characters. Both lines are centered along the length of the left y axis.

C. (Attributes and X-Y) The x-axis title may be 1 or 2 lines, each up to 40 characters. Both lines are centered along the length of the x axis.

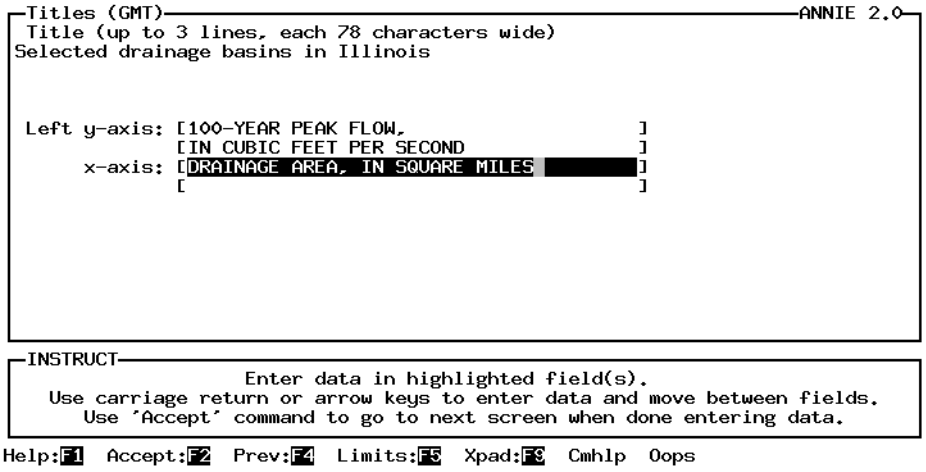
D. (Optional) The right y-axis title may be 1 or 2 lines, each up to 40 characters. Both lines are centered along the length of the right y axis.

E. (Optional, Time) The auxiliary axis title may be up to 4 lines, each up to 12 characters. All lines are centered along the length of the auxiliary axis.

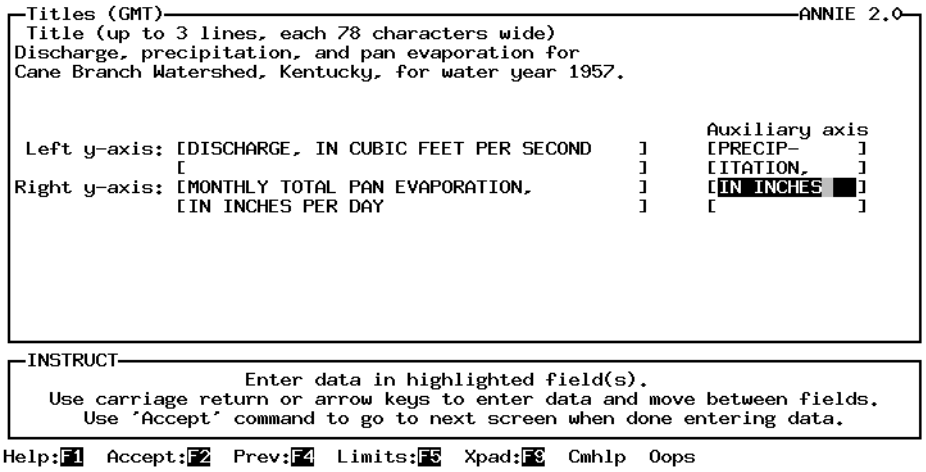
There are two examples. The first shows the Titles screen for an Attributes plot with no right y axis. The plot title is 1 line long. The title for the left y axis is 2 lines long. The title for the x axis is 1 line long.

The second example shows the Titles screen for a Time plot with a right y axis and an auxiliary axis. The plot title is 2 lines long. The left y axis is 1 line long. The right y axis is 2 lines long. The auxiliary axis is 3 lines long.

Screen for Attribute plot



Screen for Time-series plot



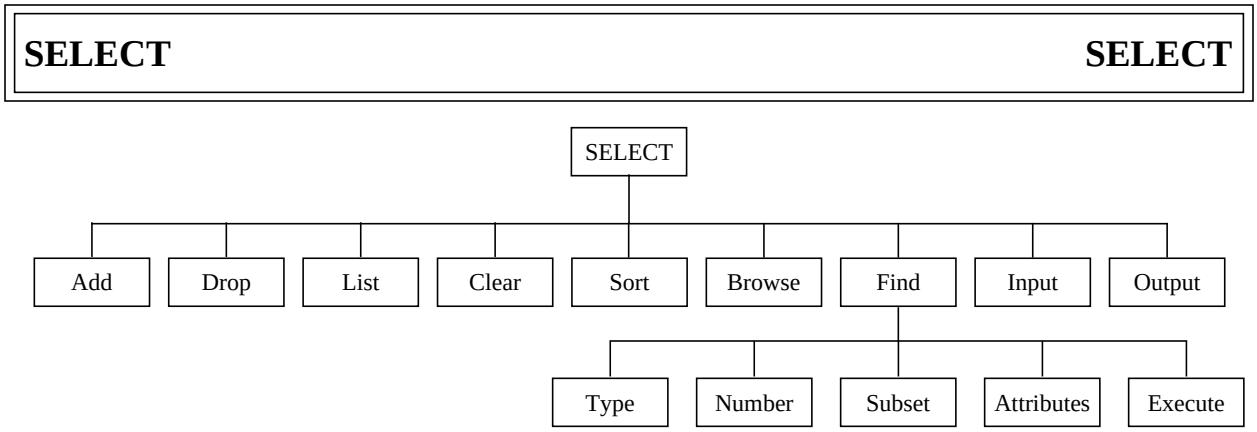


Figure 8. ANNIE/SELECT option tree.

The SELECT option is used throughout ANNIE to identify the data sets to be processed. The data-set numbers of the selected data sets are stored in a data-set buffer. The maximum number of data-set numbers that can be stored in the data-set buffer may be installation specific, but in all cases it will be at least 300. The data-set numbers in the buffer may be Listed to the screen and Output to a file. Data-set numbers may be Input to the buffer from a file or ADDed to or DROPed from the buffer by number. The FIND option is used to identify data sets with attributes that meet specified criteria and add those data-set numbers to the buffer. The Browse option is used to view selected descriptive attributes for the data sets and include or exclude those data-set numbers from the buffer. Because the data-set numbers in the data-set buffer are arranged in the order they were entered into the buffer, the Sort option is provided to allow the data-set numbers to be sorted in numerically ascending order. The Clear option is used to empty all numbers from the buffer.

The Find option is used to select data sets based on some selection criteria. The Browse option is often used when the exact contents of the WDM file are unknown. Both Find and Browse can make selections from the WDM file or from the set of data-set numbers already contained in the data-set buffer. The Output and Input options are useful when the same set of data sets are used repeatedly.

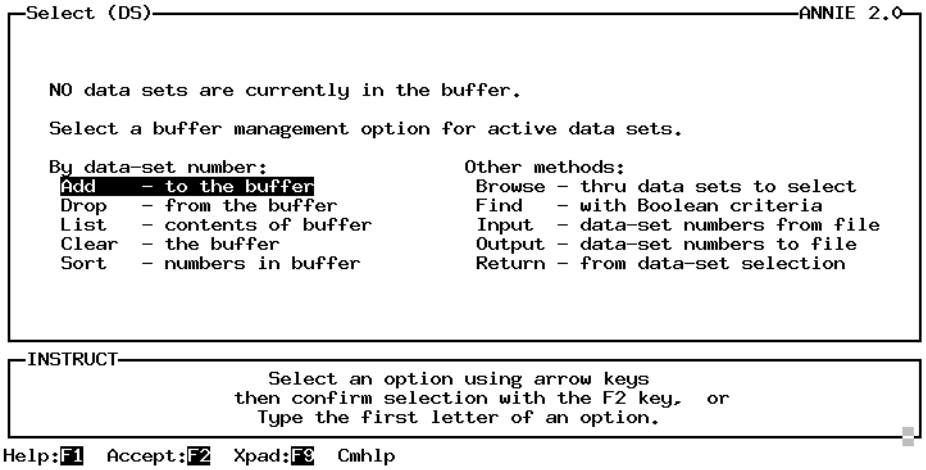
Any combination of selection options may be chosen. If a data-set number is selected more than once, it will only be entered into the data-set buffer the first time it is selected. It is important to note that the data-set buffer contains a list of data-set numbers to be processed by some ANNIE option. Dropping or Clearing numbers from the data-set buffer has no effect on the actual data sets in the WDM file. Not all options in ANNIE use the SELECT option to identify the data sets to be used.

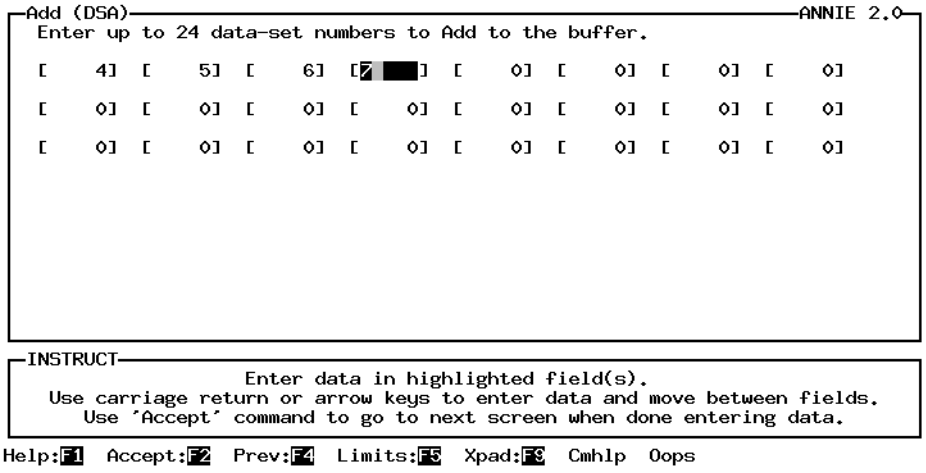
DATA SELECT ADD

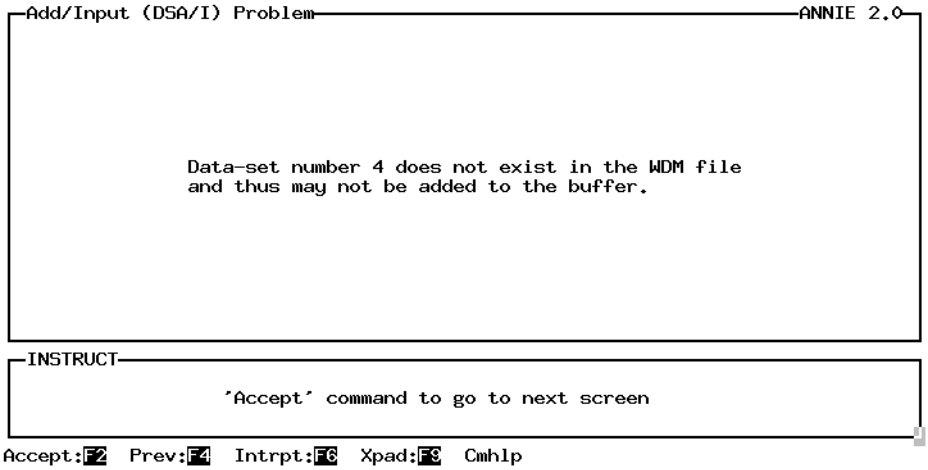
The Add option is used to add data-set numbers to the data-set buffer by number. Up to 24 data-set numbers may be added each time the option is selected. The Add option may be repeatedly selected. The program will give warning messages if an Added data-set number does not exist in the WDM file or if an Added data-set number is already in the data-set buffer. If you do not know the numbers of the data sets, use Find or Browse to select data sets. You may also find the DATA/ATTRIBUTES/view option helpful.

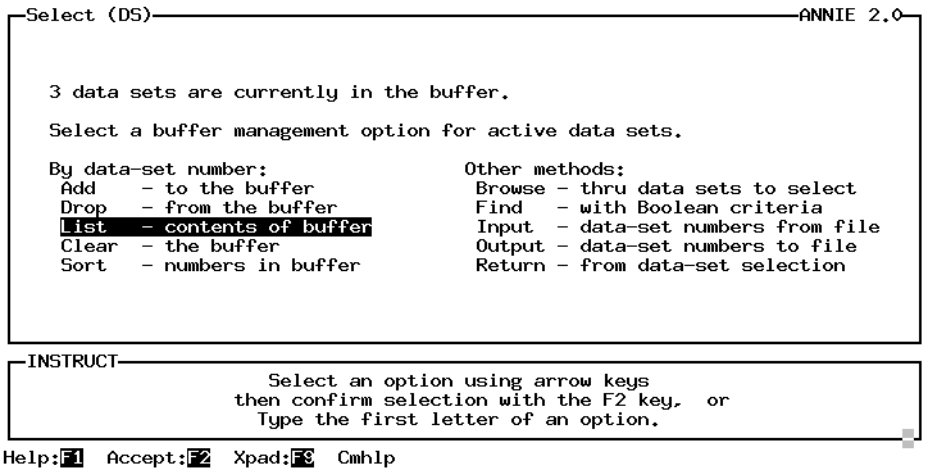
1 Enter the data-set numbers to be added to the buffer, up to 24 at a time.

The first line in the first Select screen of the example shows that there are currently NO data sets in the buffer. Four data-set numbers, 4 through 7, were entered on the Add screen. The first data-set number, 4, did not exist in the WDM file so it was not added to the buffer. The final Select screen of the example indicates that the three data sets are now in the buffer. The List option could be used at this point to verify that the buffer contains the expected data-set numbers.






Add/Input (DSA/I) Problem
ANNIE 2.0
Data-set number 4 does not exist in the WDM file
and thus may not be added to the buffer.
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Prev:F4 Intrpt:F6 Xpad:F9 Cmhlp


Select (DS)
ANNIE 2.0
3 data sets are currently in the buffer.
Select a buffer management option for active data sets.
By data-set number:
Add - to the buffer
Drop - from the buffer
List - contents of buffer
Clear - the buffer
Sort - numbers in buffer
Other methods:
Browse - thru data sets to select
Find - with Boolean criteria
Input - data-set numbers from file
Output - data-set numbers to file
Return - from data-set selection
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp

DATA SELECT BROWSE

The Browse option is used to add and drop data-set numbers from the data-set buffer. It is useful when the exact contents of the WDM file are not known. It can also be useful for fine tuning the selection of data-set numbers in the buffer.

In the Browse option, a table containing data-set numbers with accompanying descriptive information is displayed. The first column in this table contains a YES/NO switch indicating whether this data set should be included in the data-set buffer. Data-set numbers may be added or dropped from the data-set buffer by modifying this switch. The source for the data sets to be browsed may be the entire WDM file or may be restricted to those data sets currently selected and in the data-set buffer. Browse may be used to view information about the selected data sets.

The Browse screen includes the YES/NO switch, the data-set number, the data-set type, and the attribute TSTYPE. The data-set types may include:

TS - time series	VE - vector
TB - table	RA - raster
SC - schematic	ST - space-time
PR - project	AT - attribute

The additional descriptive attributes may be:

Description - station name (STANAM) or description (DESCRP),

Location - latitude (LATDEG or LATDMS), longitude (LNGDEG or LNGDMS), elevation (ELEV), state FIPS code (STFIPS), and station id (ISTAID or STAID), or

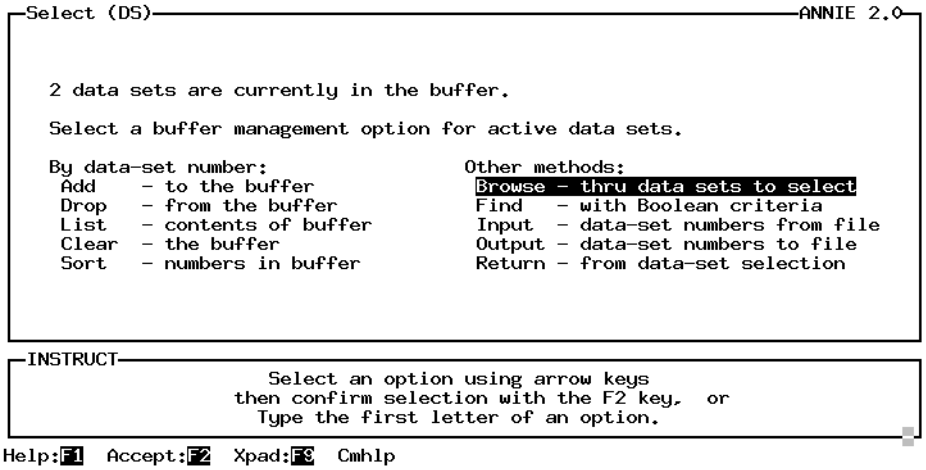
Period of record - begin and end dates of time-series data and station id (ISTAID or STAID).

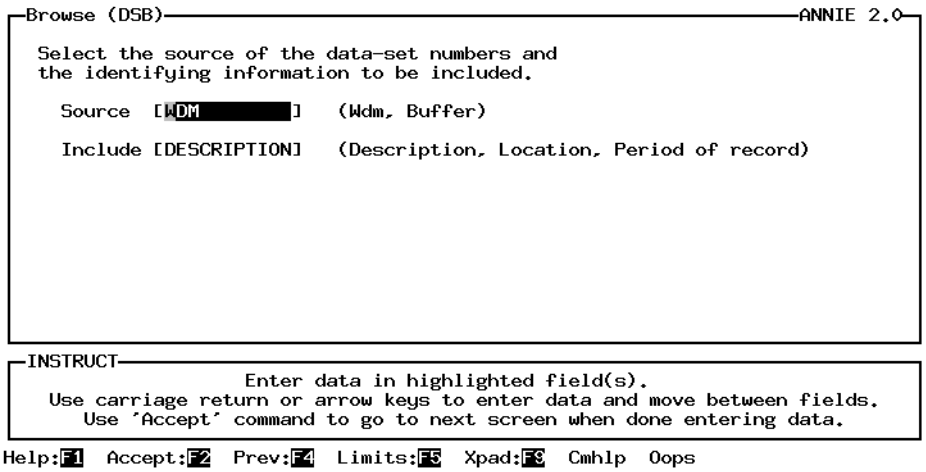
1 Specify the Source (WDM file or the data-set BUFFER) and the type of information to be displayed (DESCRIPTION, LOCATION, or PERIOD of Record) for the Browse.

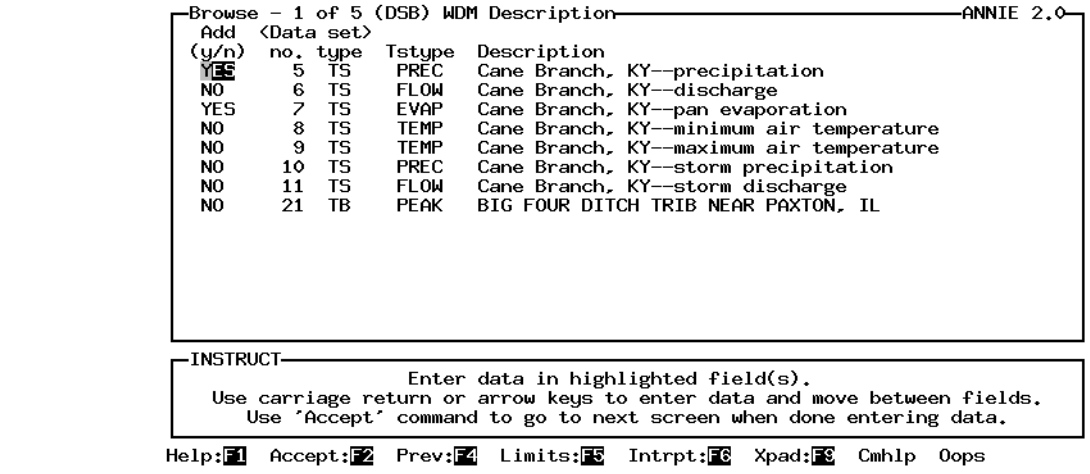
2 Move from one Browse screen to the next by executing Accept (F2) and Prev (F4) and return to the Select menu by executing Intrpt (F6). Note that when Intrpt (F6) or Prev (F4) is used to exit a screen, any changes made on that screen will not be processed; always execute Accept (F2) when you have modified a Browse screen.

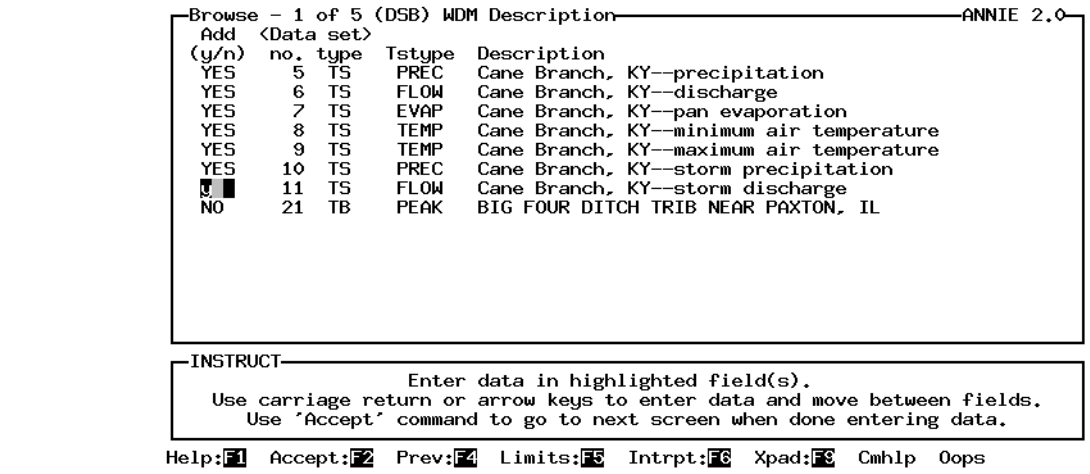
In the example, data sets from the WDM file are browsed. The Browse screen includes the Description of the data sets. The window name (upper left) indicates that this is the first of five Browse screens. Because there are 8 data sets displayed per screen, the WDM file must contain between 33 and 40 data sets. The first Browse screen indicates that data-sets 5 and 7 have already been placed in the data-set buffer (note that the Select screen indicated that there were currently two data sets in the buffer). The first Browse screen was modified to include all of the Cane Branch data sets, data-set numbers 5 through 11. Accept (F2) was executed to continue on to the second Browse

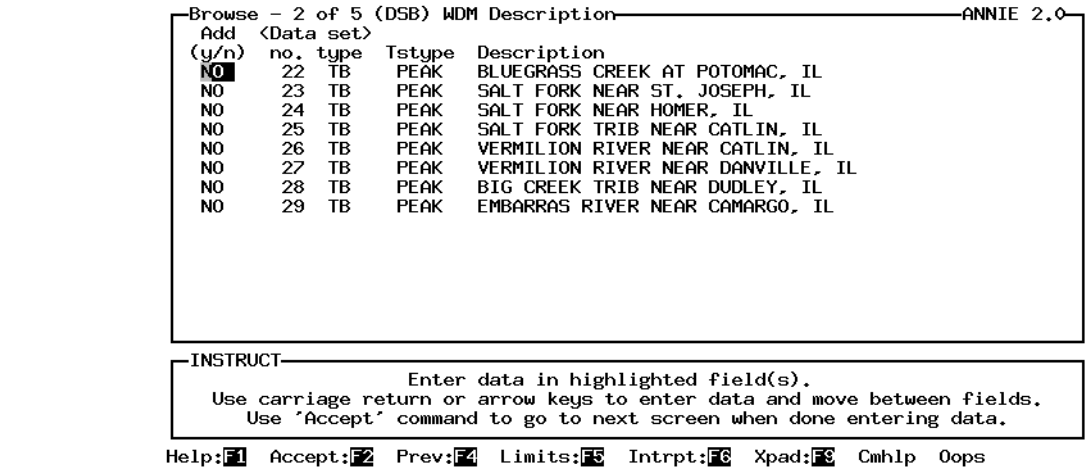
screen. Intrpt (F6) was executed to leave Browse and return to the Select screen. The Select screen now shows seven data sets in the buffer. The List option was used to list the contents of the data-set buffer. Note that the data sets are in the order they were entered, 5 and 7 were already in the buffer when Browse was selected, and data-sets 6 and 8 through 11 were added after data-set 7.

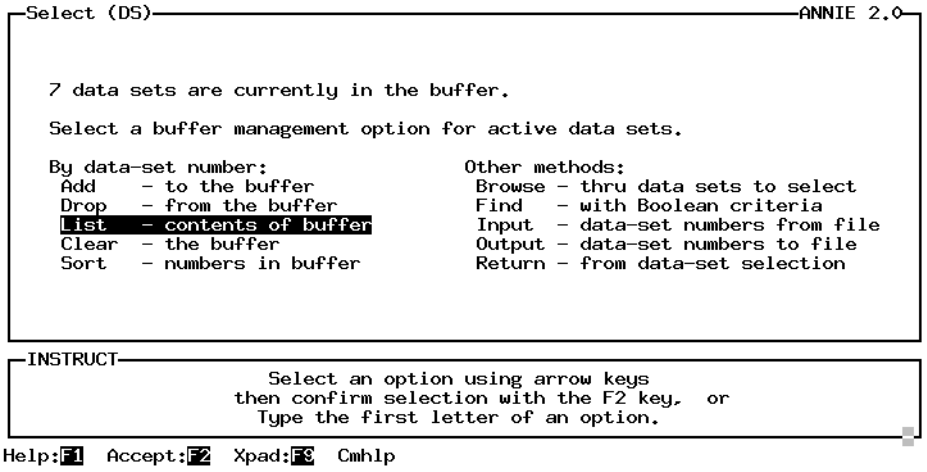


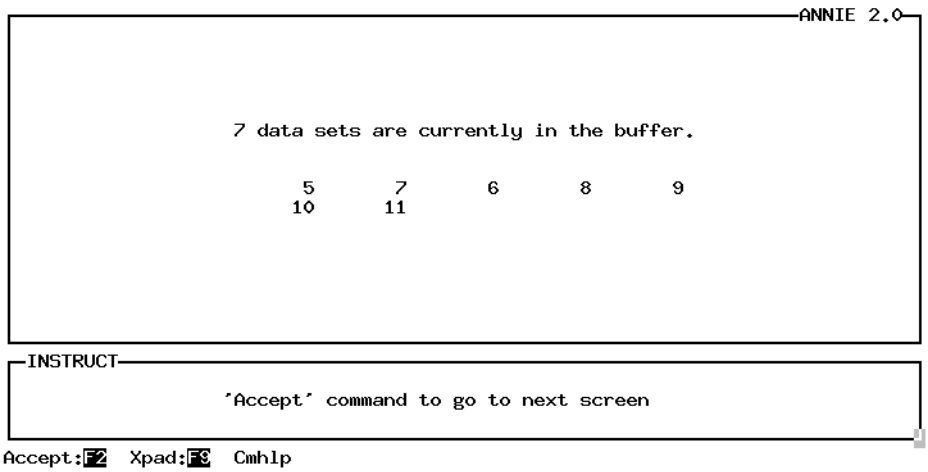



Browse - 1 of 5 (DSB) WDM Description ANNIE 2.0
Add (y/n) <Data set> no. type Tstype Description
YES 5 TS PREC Cane Branch, KY--precipitation
NO 6 TS FLOW Cane Branch, KY--discharge
YES 7 TS EVAP Cane Branch, KY--pan evaporation
NO 8 TS TEMP Cane Branch, KY--minimum air temperature
NO 9 TS TEMP Cane Branch, KY--maximum air temperature
NO 10 TS PREC Cane Branch, KY--storm precipitation
NO 11 TS FLOW Cane Branch, KY--storm discharge
NO 21 TB PEAK BIG FOUR DITCH TRIB NEAR PAXTON, IL
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops


Browse - 1 of 5 (DSB) WDM Description ANNIE 2.0
Add (y/n) <Data set> no. type Tstype Description
YES 5 TS PREC Cane Branch, KY--precipitation
YES 6 TS FLOW Cane Branch, KY--discharge
YES 7 TS EVAP Cane Branch, KY--pan evaporation
YES 8 TS TEMP Cane Branch, KY--minimum air temperature
YES 9 TS TEMP Cane Branch, KY--maximum air temperature
YES 10 TS PREC Cane Branch, KY--storm precipitation
Y 11 TS FLOW Cane Branch, KY--storm discharge
NO 21 TB PEAK BIG FOUR DITCH TRIB NEAR PAXTON, IL
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops


Browse - 2 of 5 (DSB) WDM Description ANNIE 2.0
Add (y/n) <Data set> no. type Tstype Description
NO 22 TB PEAK BLUEGRASS CREEK AT POTOMAC, IL
NO 23 TB PEAK SALT FORK NEAR ST. JOSEPH, IL
NO 24 TB PEAK SALT FORK NEAR HOMER, IL
NO 25 TB PEAK SALT FORK TRIB NEAR CATLIN, IL
NO 26 TB PEAK VERMILION RIVER NEAR CATLIN, IL
NO 27 TB PEAK VERMILION RIVER NEAR DANVILLE, IL
NO 28 TB PEAK BIG CREEK TRIB NEAR DUDLEY, IL
NO 29 TB PEAK EMBARRAS RIVER NEAR CAMARGO, IL
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Prev:F4 Limits:F5 Intrpt:F6 Xpad:F9 Cmhlp Oops


Select (DS)
ANNIE 2.0
7 data sets are currently in the buffer.
Select a buffer management option for active data sets.
By data-set number:
Add - to the buffer
Drop - from the buffer
List - contents of buffer
Clear - the buffer
Sort - numbers in buffer
Other methods:
Browse - thru data sets to select
Find - with Boolean criteria
Input - data-set numbers from file
Output - data-set numbers to file
Return - from data-set selection
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp

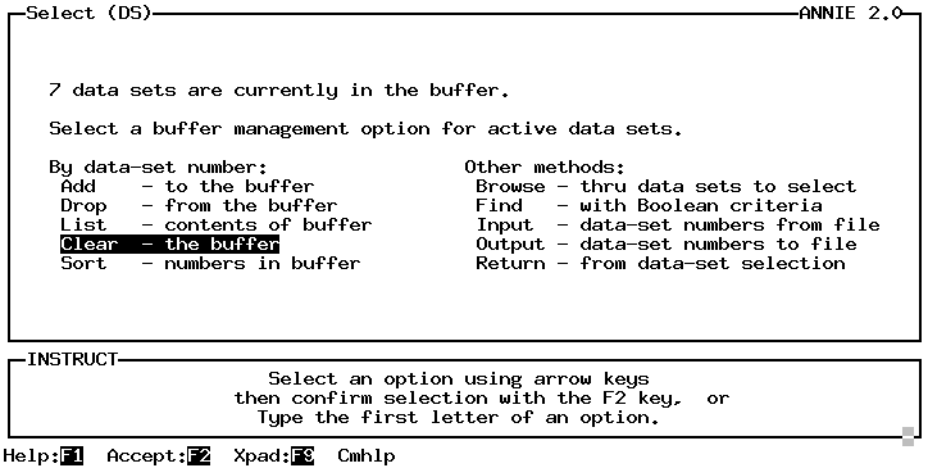

ANNIE 2.0
7 data sets are currently in the buffer.
5 7 6 8 9
10 11
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Xpad:F3 Cmhlp

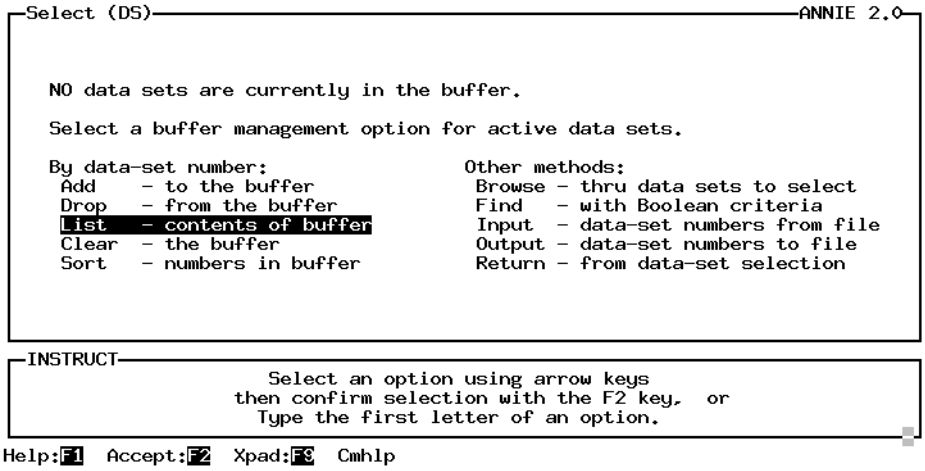
DATA SELECT CLEAR

The Clear option is used to empty the data-set buffer. All entries in the data-set buffer are deleted. This option is used to empty the data-set buffer so that a new set of data-set numbers may be placed into the buffer. Note that this option affects only the data-set buffer; no data in the WDM file are deleted. To drop selected data sets from the buffer, see the Browse and Drop options under SELECT.

There are no steps under Clear.

The first line in the Select screen indicates that there are currently seven data sets in the buffer. After the Clear option is chosen, the Select screen indicates that NO data sets are currently in the buffer.



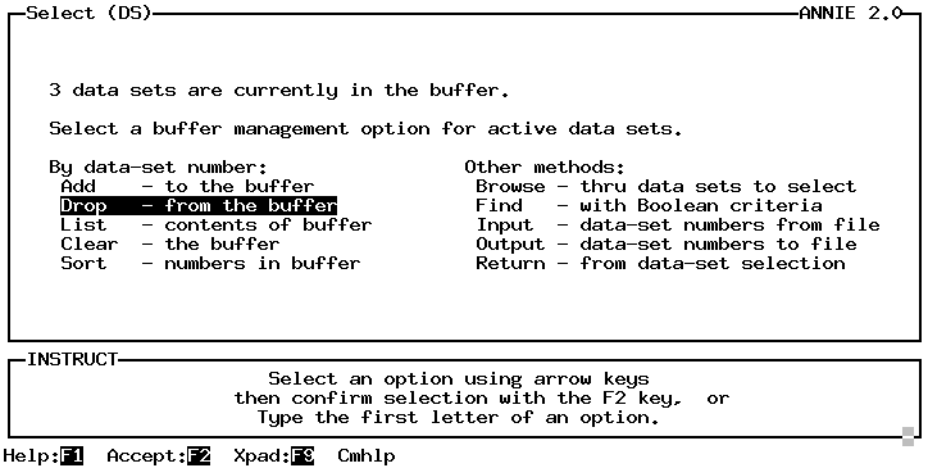


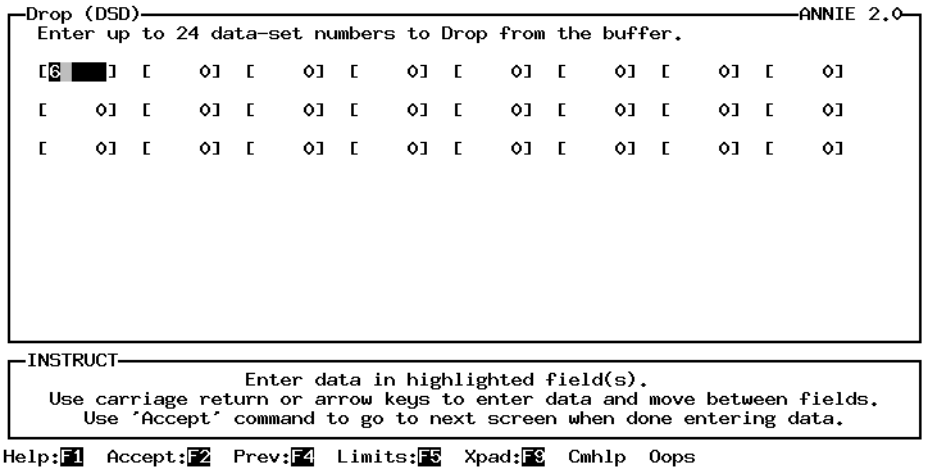
DATA SELECT DROP

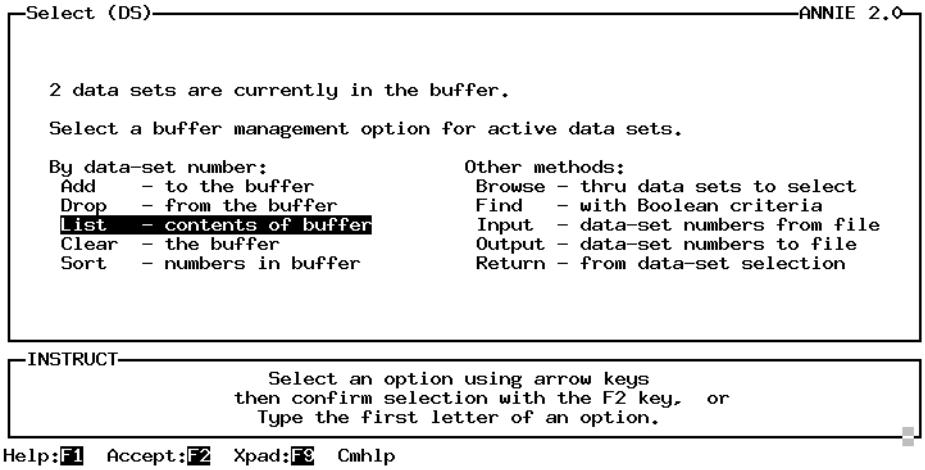
The Drop option is used to remove selected data sets from the data-set buffer. Up to 24 data-set numbers may be dropped each time the option is selected. The Drop option may be repeatedly selected. Note that this option affects only the data-set buffer; no data in the WDM file are deleted. To completely empty the data-set buffer, see SELECT/Clear. SELECT/Browse may also be used to selectively remove data sets from the buffer.

1 Enter the data-set numbers to be removed from the buffer, up to 24 at a time.

The first line in the Select screen of the example shows that there are currently three data sets in the buffer. Data-set number 6 was dropped from the buffer. The final Select screen of the example shows that there are two data sets currently in the buffer.






Select (DS)
ANNIE 2.0
2 data sets are currently in the buffer.
Select a buffer management option for active data sets.
By data-set number:
Add - to the buffer
Drop - from the buffer
List - contents of buffer
Clear - the buffer
Sort - numbers in buffer
Other methods:
Browse - thru data sets to select
Find - with Boolean criteria
Input - data-set numbers from file
Output - data-set numbers to file
Return - from data-set selection
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp

DATA SELECT FIND

The Find option is used to add data-set numbers to the data-set buffer based on the characteristics of the data sets. User-specified conditions are combined using Boolean algebra principles to define the searching criteria to be used in identifying the data sets to be added to the data-set buffer. A chain of "and," "or," and "not" conditions may be combined. The data-set number of each data set that satisfies the conditions is added to the buffer. The domain of a search may be limited to a range of data-set Numbers, a Type of data set (such as time series or table), or the Subset of data sets already in the data-set buffer. By default, the domain of a search is ALL types of data sets and the full range of data-set numbers in the WDM file. Data-set selection may be further limited to data sets with attribute values that meet specific criteria. When a search is Executed without any domain or criteria specified, all data sets in the WDM file are selected.

(Note, if the size of the data-set buffer, usually at least 300, is smaller than the number of data sets that meet the selection criteria, then as many data-set numbers as will fit will be added to the buffer.)

1 (Optional) Specify the domain of the search. By default, all data sets in the WDM file will be considered. The domain of the search may be limited by:

Type - by default, all data-set types are considered, may be limited to a single data-set type.

Number - by default, all data-set numbers are considered, may be limited to a range of data-set numbers. The valid range of data-set numbers is 1 to 32,000.

Subset - by default, data sets in the WDM file are considered, may be limited to the data sets already selected and identified by number in the data-set buffer.

2 (Optional) Specify the selection criteria. A value range may be defined for up to 10 user-specified Attributes.

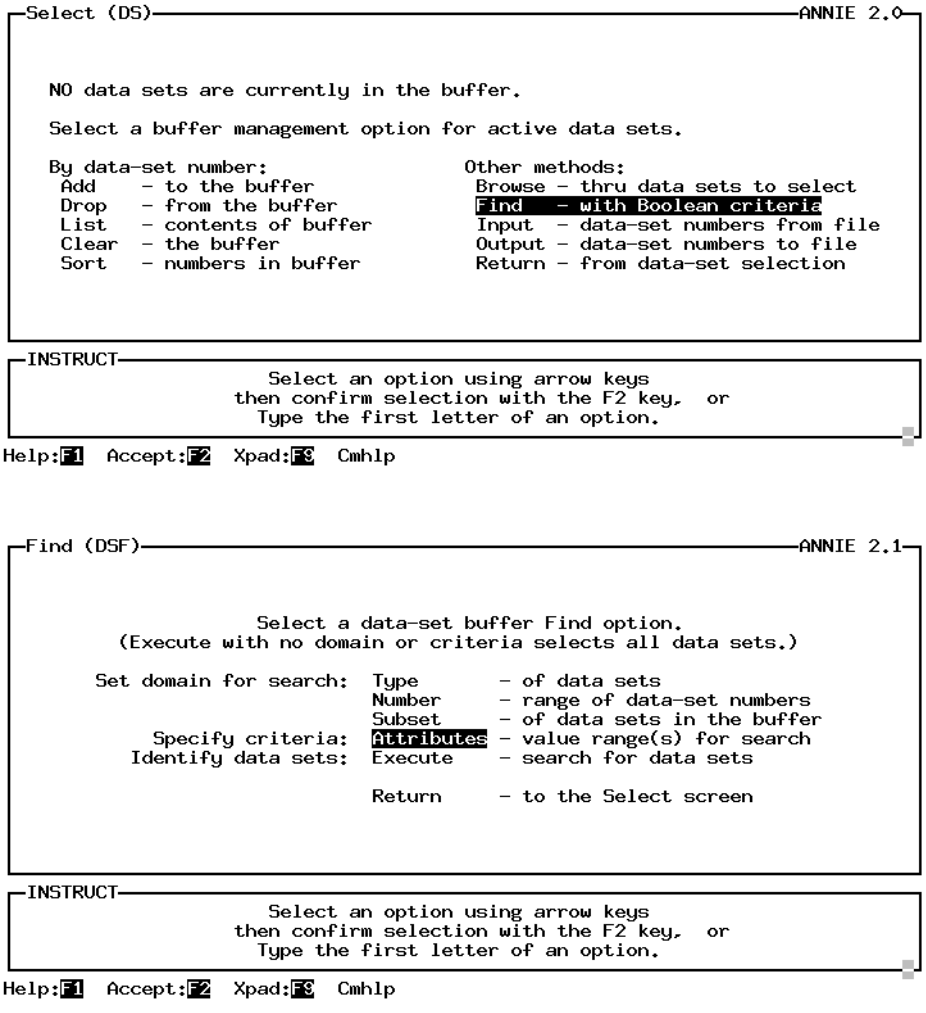
A. Enter one or more attributes with the desired value range. The Boolean "and" will be used to verify that each of these conditions is met for a data set to be included in the data-set buffer. The Boolean "not" condition will be used when the data-set numbers are added to the buffer if the condition is False.

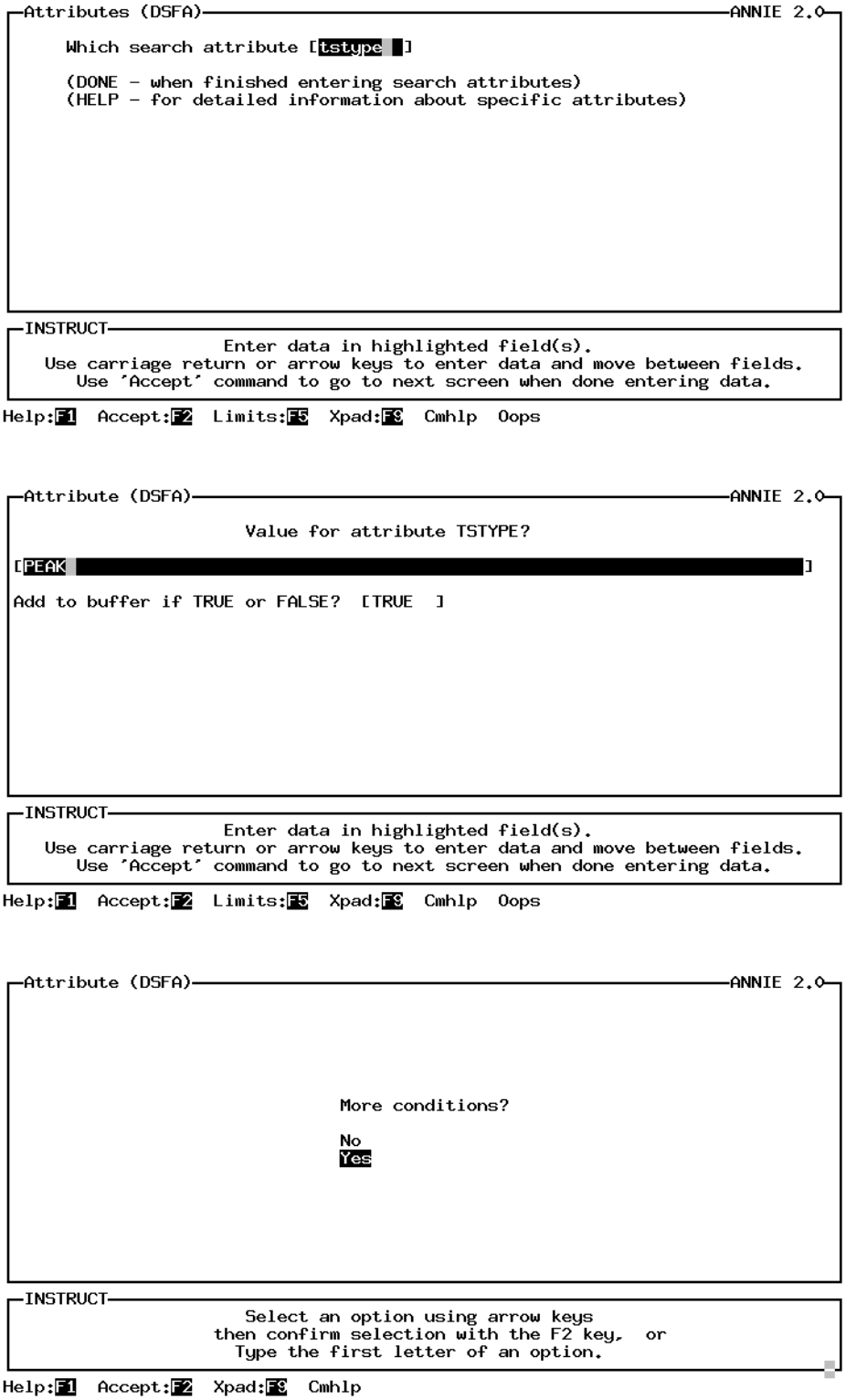
B. Repeat step A for additional "or" selection criteria.

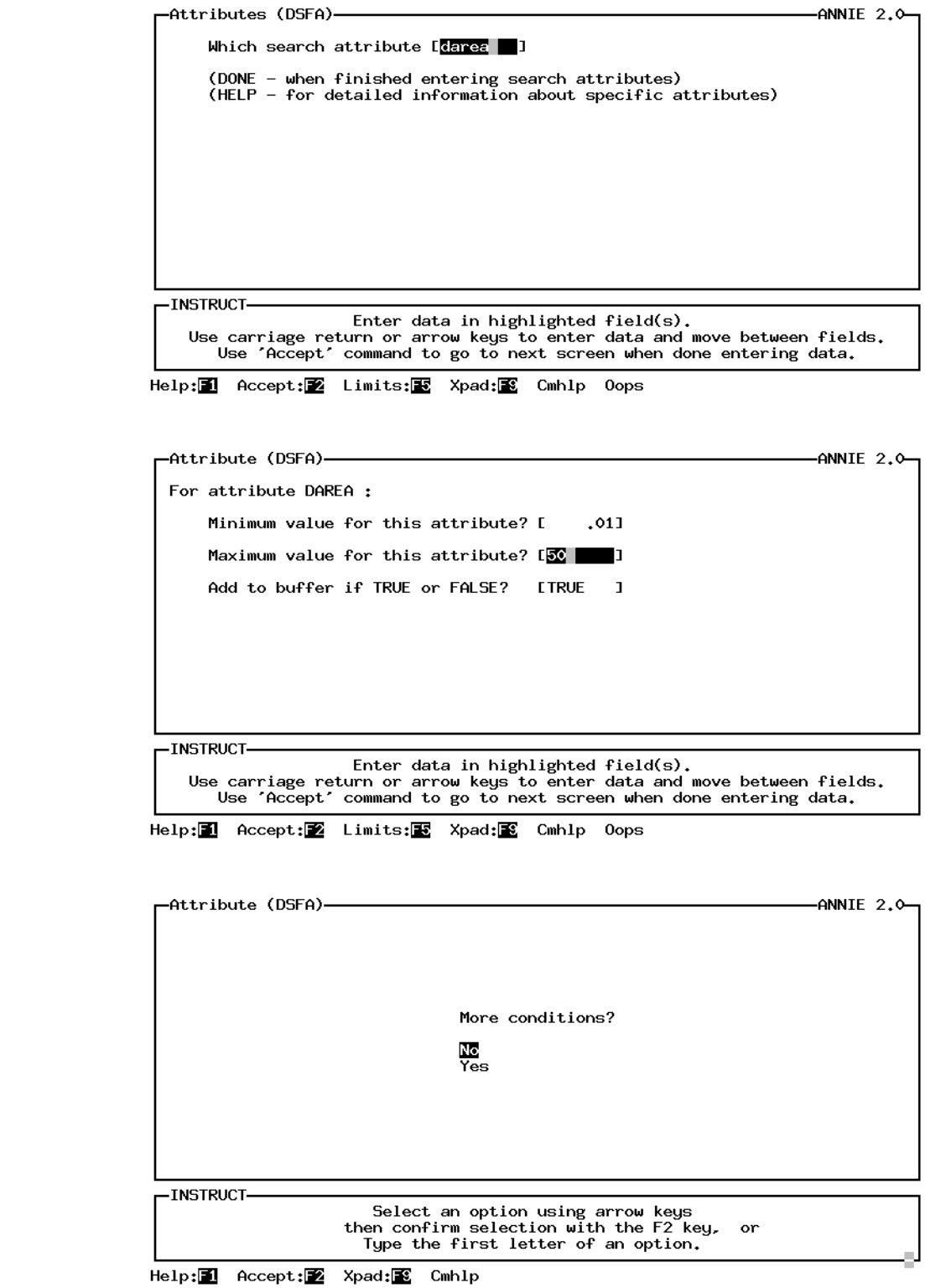
3 Execute the search. A summary of the search criteria will be displayed on the screen. If the criteria are not what was needed, the Execute may be abandoned by executing Prev (F1). Otherwise, Accept (F2) to continue with the selection.

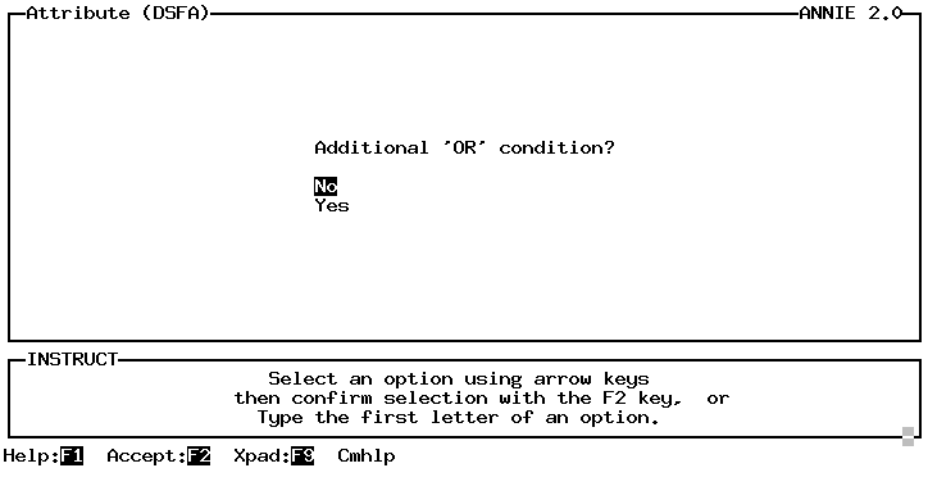
4 Repeat steps 1, 2, and 3 until all of the desired data-set numbers have been placed in the data-set buffer.

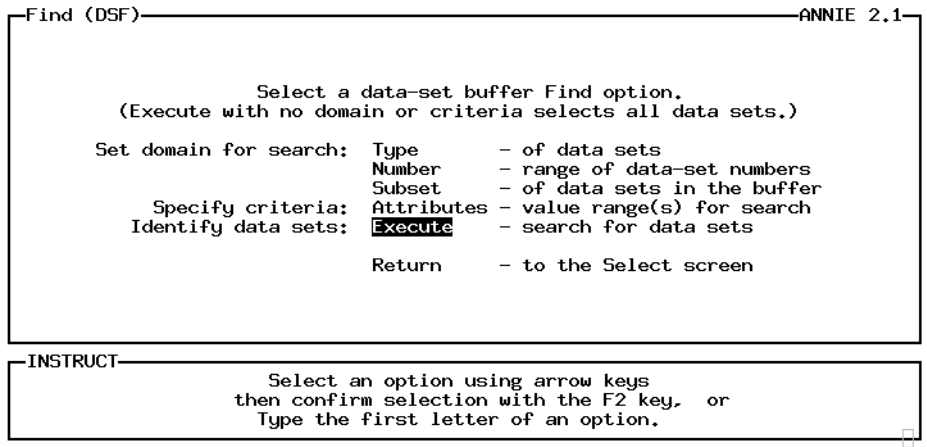
In the example, the initial Select menu indicates that NO data sets are currently in the buffer. No domain has been specified for the search, so by default, all types of data sets in the full range of data-set numbers in the WDM file will be checked against the selection criteria. The selection criteria specified data sets with the value PEAK for the attribute TSTYPE "and" the value range .01 through 50 for the attribute DAREA. No additional "or" conditions were defined. The summary screen for Execute indicates that 38 data sets were within the specified search domain, and 17 of those data sets met the selection criteria and were added to the data-set buffer. List was chosen from the Select menu to view the data-set numbers in the buffer. The Select menu now indicates that 17 data sets are currently in the buffer.

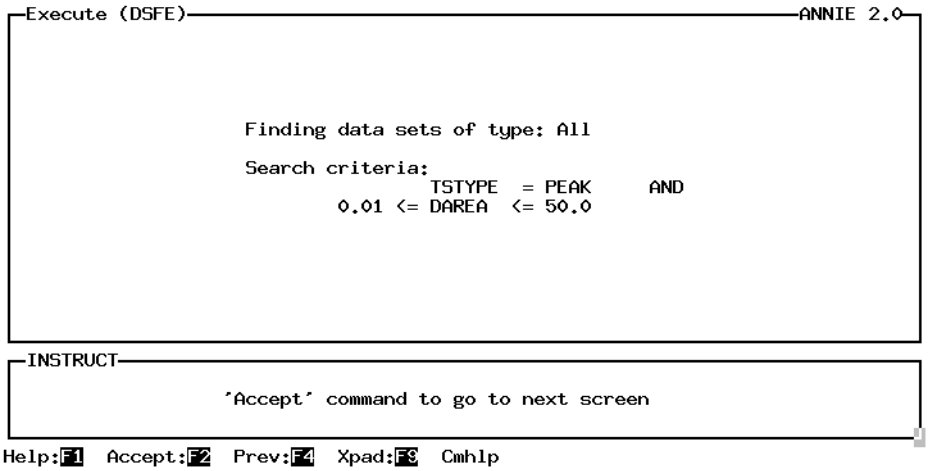


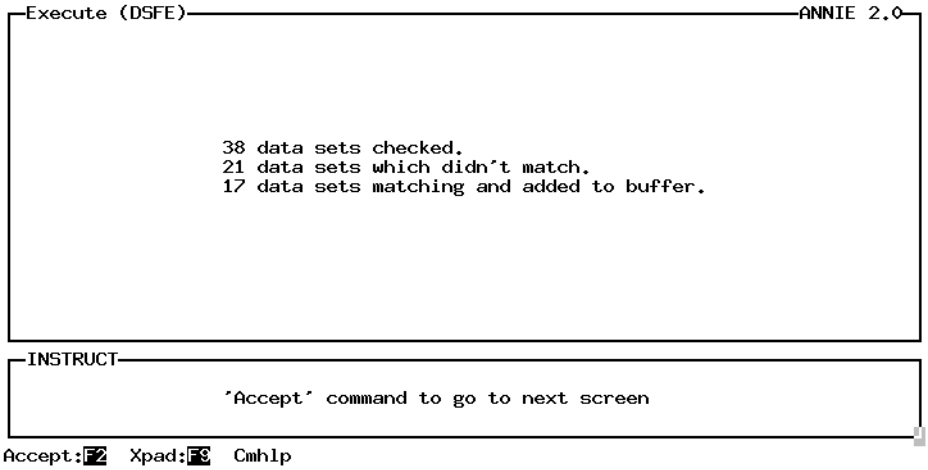

Attributes (DSFA)
ANNIE 2.0
Which search attribute [tstype]
(DONE - when finished entering search attributes)
(HELP - for detailed information about specific attributes)
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Limits:F5 Xpad:F9 Cmhlp Oops
Attribute (DSFA)
ANNIE 2.0
Value for attribute TSTYPE?
[PEAK]
Add to buffer if TRUE or FALSE? [TRUE]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Limits:F5 Xpad:F9 Cmhlp Oops
Attribute (DSFA)
ANNIE 2.0
More conditions?
No
Yes
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp

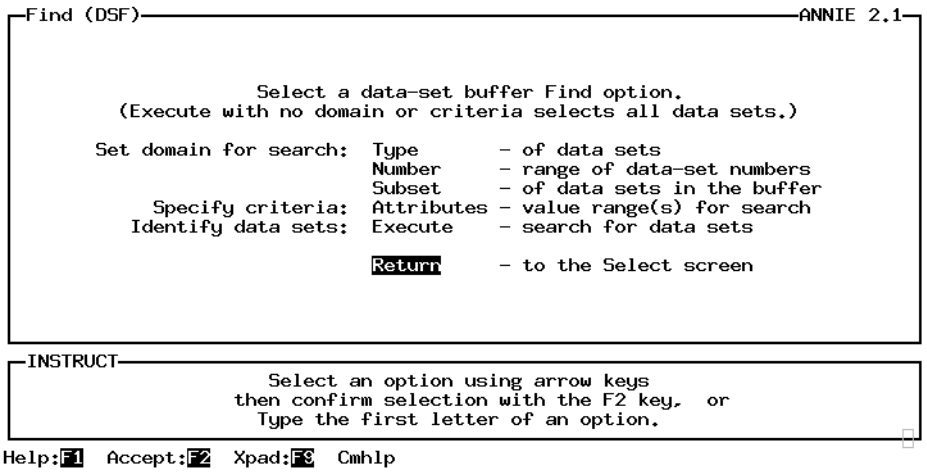

Attributes (DSFA) ANNIE 2.0
Which search attribute [darea]
(DONE - when finished entering search attributes)
(HELP - for detailed information about specific attributes)
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Limits:F5 Xpad:F9 Cmhlp Oops
Attribute (DSFA) ANNIE 2.0
For attribute DAREA :
Minimum value for this attribute? [.01]
Maximum value for this attribute? [50]
Add to buffer if TRUE or FALSE? [TRUE]
INSTRUCT
Enter data in highlighted field(s).
Use carriage return or arrow keys to enter data and move between fields.
Use 'Accept' command to go to next screen when done entering data.
Help:F1 Accept:F2 Limits:F5 Xpad:F9 Cmhlp Oops
Attribute (DSFA) ANNIE 2.0
More conditions?
No
Yes
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F9 Cmhlp

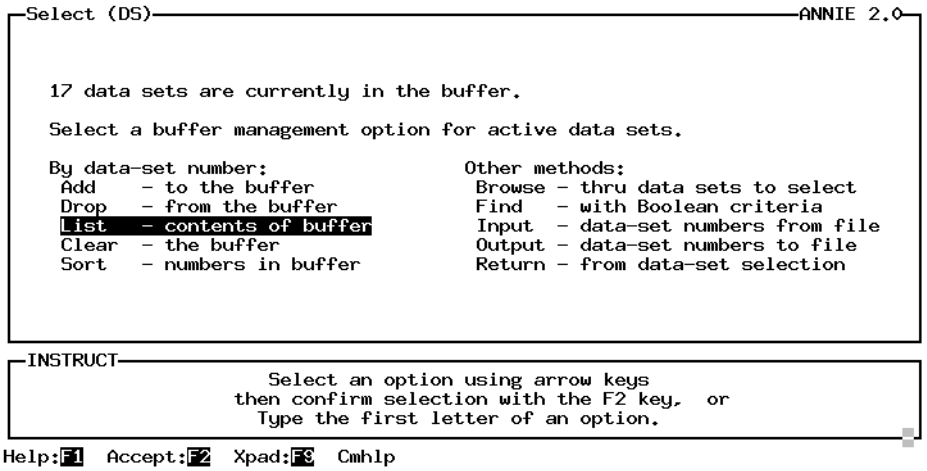

Attribute (DSFA)
ANNIE 2.0
Additional 'OR' condition?
No
Yes
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp


Find (DSF)
ANNIE 2.1
Select a data-set buffer Find option.
(Execute with no domain or criteria selects all data sets.)
Set domain for search: Type - of data sets
Number - range of data-set numbers
Subset - of data sets in the buffer
Specify criteria: Attributes - value range(s) for search
Identify data sets: Execute - search for data sets
Return - to the Select screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp

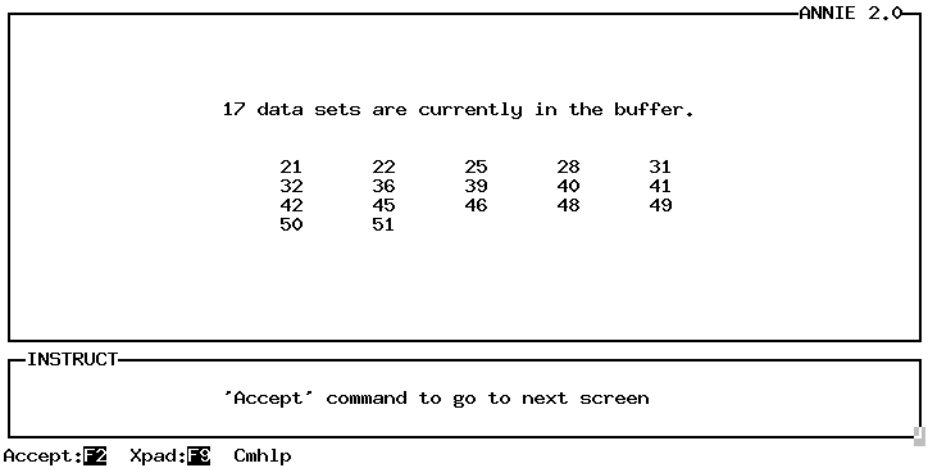

Execute (DSFE)
ANNIE 2.0
Finding data sets of type: All
Search criteria:
TSTYPE = PEAK AND
0.01 <= DAREA <= 50.0
INSTRUCT
'Accept' command to go to next screen
Help:F1 Accept:F2 Prev:F4 Xpad:F3 Cmhlp


Execute (DSFE)
ANNIE 2.0
38 data sets checked.
21 data sets which didn't match.
17 data sets matching and added to buffer.
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Xpad:F3 Cmhlp


Find (DSF)
ANNIE 2.1
Select a data-set buffer Find option.
(Execute with no domain or criteria selects all data sets.)
Set domain for search: Type - of data sets
Number - range of data-set numbers
Subset - of data sets in the buffer
Specify criteria: Attributes - value range(s) for search
Identify data sets: Execute - search for data sets
Return - to the Select screen
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp


Select (DS)
ANNIE 2.0
17 data sets are currently in the buffer.
Select a buffer management option for active data sets.
By data-set number:
Add - to the buffer
Drop - from the buffer
List - contents of buffer
Clear - the buffer
Sort - numbers in buffer
Other methods:
Browse - thru data sets to select
Find - with Boolean criteria
Input - data-set numbers from file
Output - data-set numbers to file
Return - from data-set selection
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp

SELECT	find	SELECT

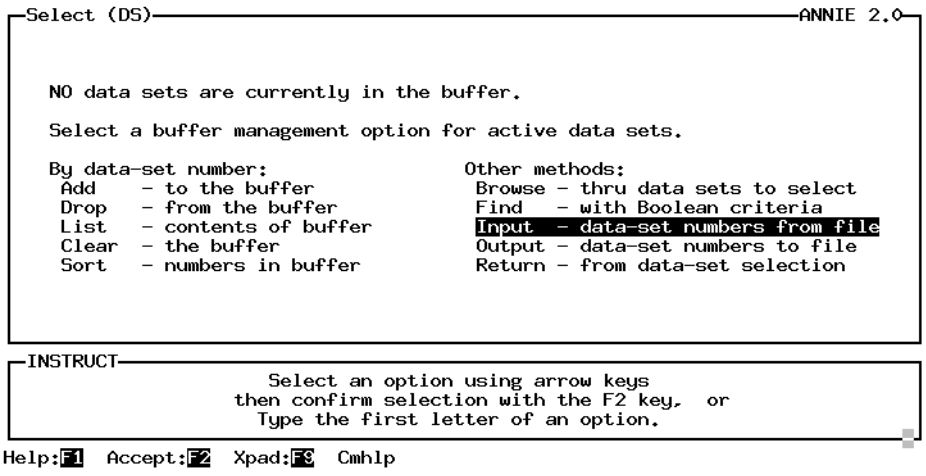


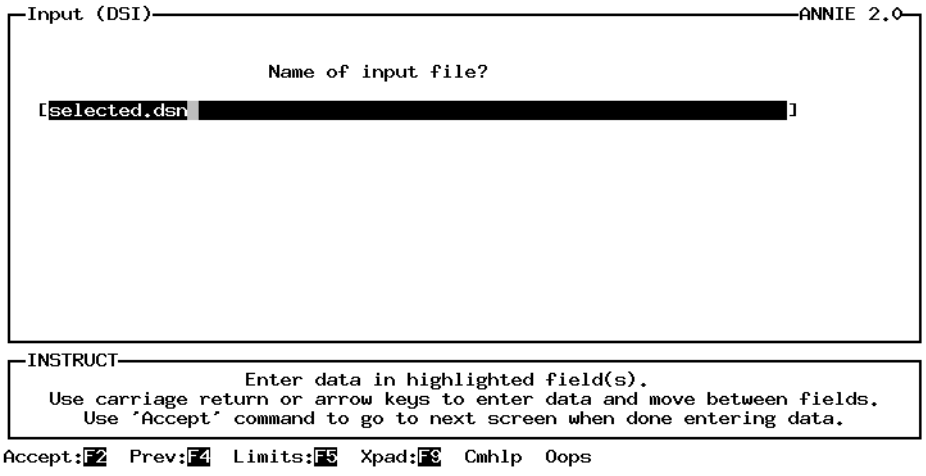
DATA SELECT INPUT

The Input option is used to add data-set numbers to the data-set buffer by reading the numbers from a file. The file may have been created using the SELECT/Output option or by using a text editor. The Output and Input options are useful for sets of data-set numbers that are frequently used. The SELECT Output/Input file is formatted. The format is 10 fields per record, each field six characters wide, with the data-set numbers right justified in the fields.

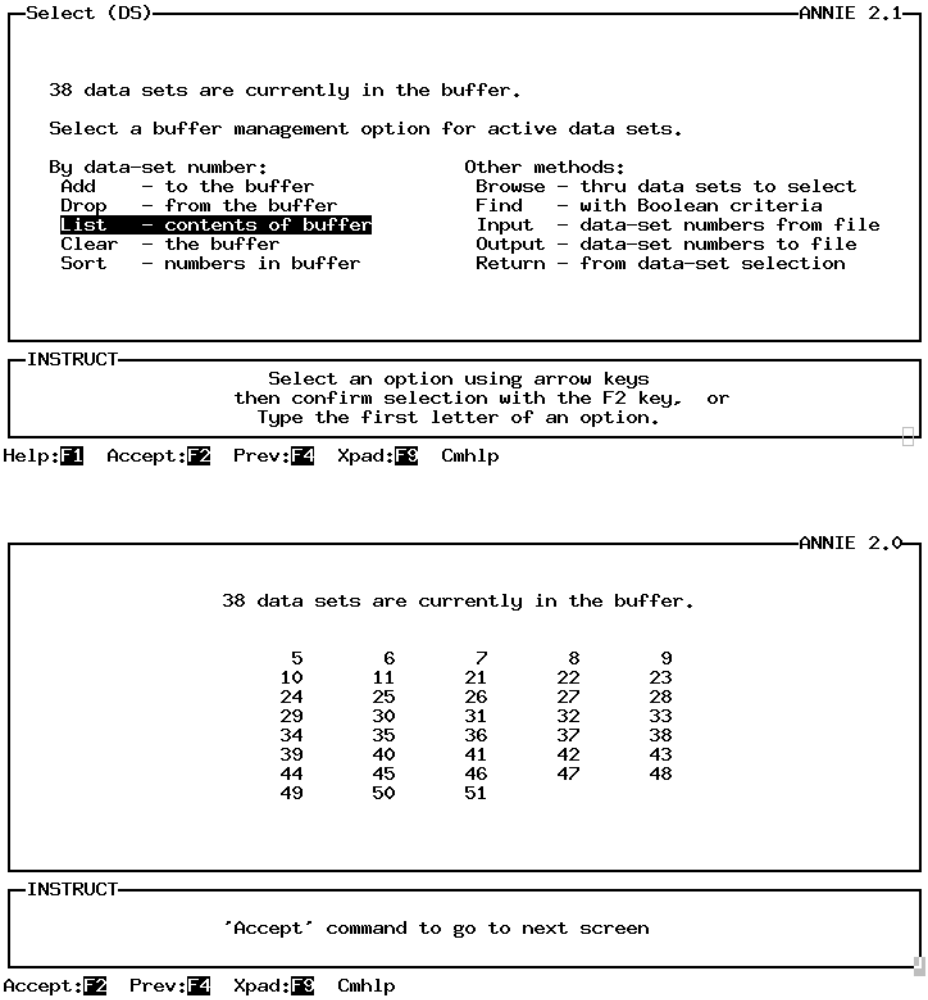
1 Enter the name of the file containing the data-set numbers.

The example shows data-set numbers being read from a file called selected.dsn. The initial Select menu indicates that there are NO data sets currently in the buffer. After Input, the Select menu indicates that the buffer contains 38 data sets. The numbers of the data sets are seen by selecting List from the Select menu. The contents of the file selected.dsn are shown at the end of the example.





SELECT	input	SELECT



Contents of selected.dsn file :

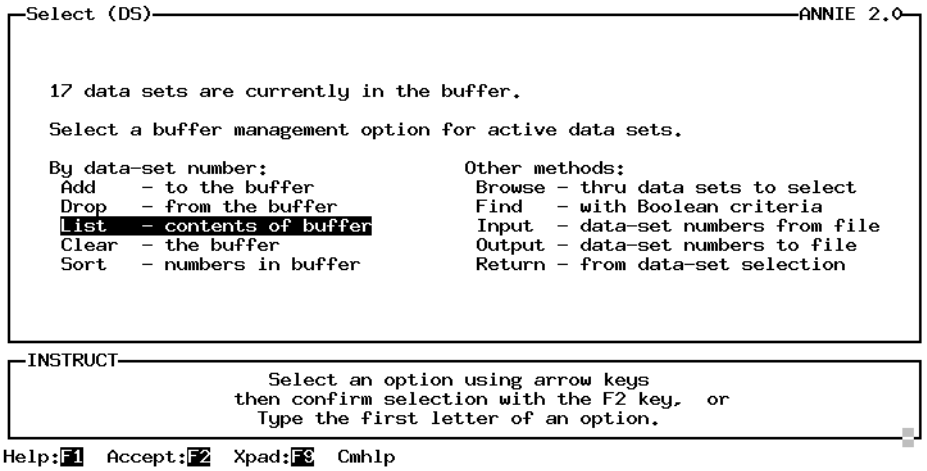
```
 5    6    7    8    9   10   11   21   22   23
24   25   26   27   28   29   30   31   32   33
34   35   36   37   38   39   40   41   42   43
44   45   46   47   48   49   50   51
```

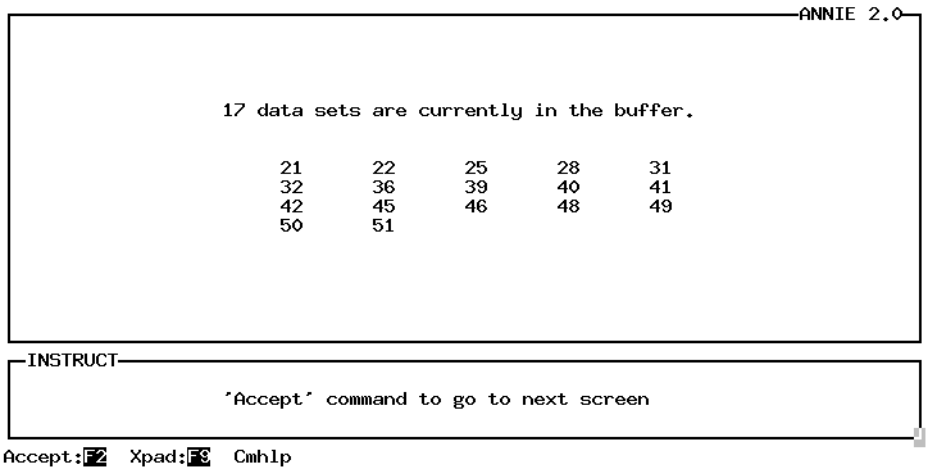
DATA SELECT LIST

The List option is used to view the contents of the data-set buffer. Data sets are entered into the buffer by using the Find, Browse, Input, and Add options under SELECT. Data sets are removed from the buffer by using the Browse, Clear, and Drop options under SELECT.

There are no steps under List.

In the example, the first line in the SELECT screen indicates that there are currently 17 data sets in the buffer. The numbers of the data sets are displayed on the screen when LIST is selected.



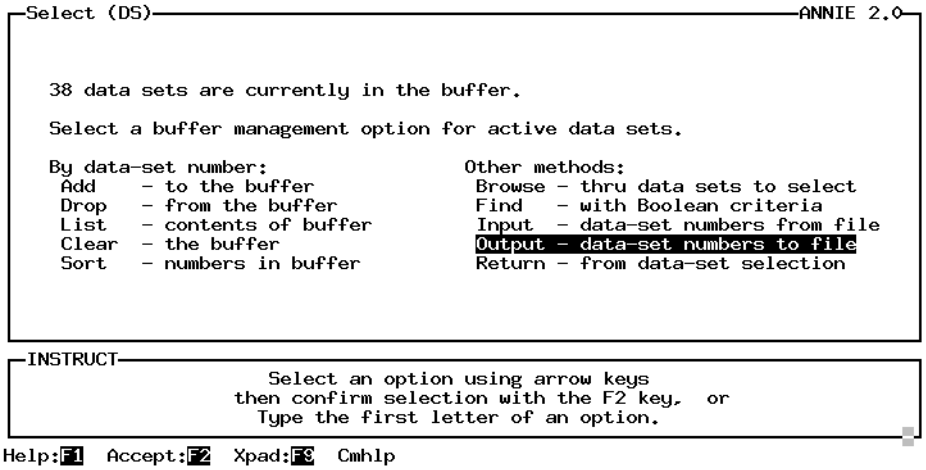


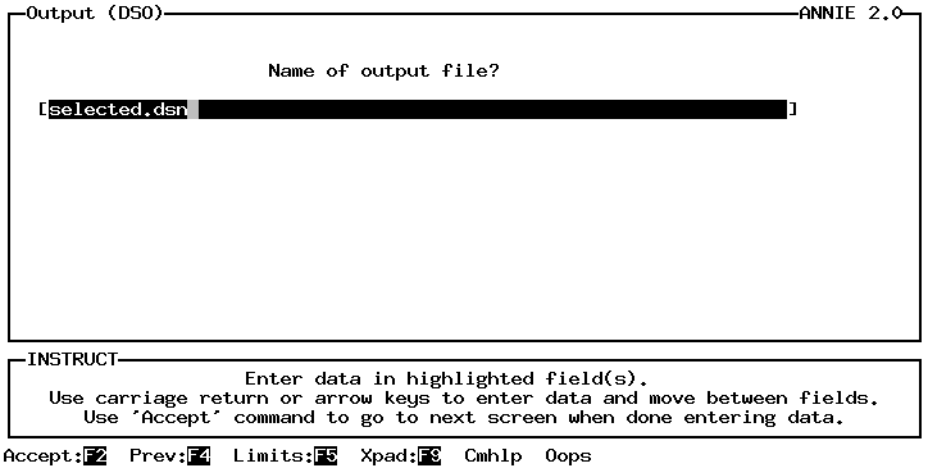
DATA SELECT OUTPUT

The Output option is used to save the contents of the data-set buffer to a file. The file may be subsequently read using the SELECT/Input option to add the data-set numbers to the buffer. Output does not modify the contents of the data-set buffer. The Output and Input options are useful for sets of data-set numbers that are frequently used. The SELECT Output/Input file is formatted. The format is 10 fields per record, each field six characters wide, with the data-set numbers right justified in the fields.

1 Enter the name for the file to contain the data-set numbers.

In the example, the first line in the Select screen indicates that there are currently 38 data sets in the data-set buffer. The data-set numbers were output to the file selected.dsn. The contents of the file selected.dsn are shown at the end of the example.





SELECT output SELECT

Contents of selected.dsn file :

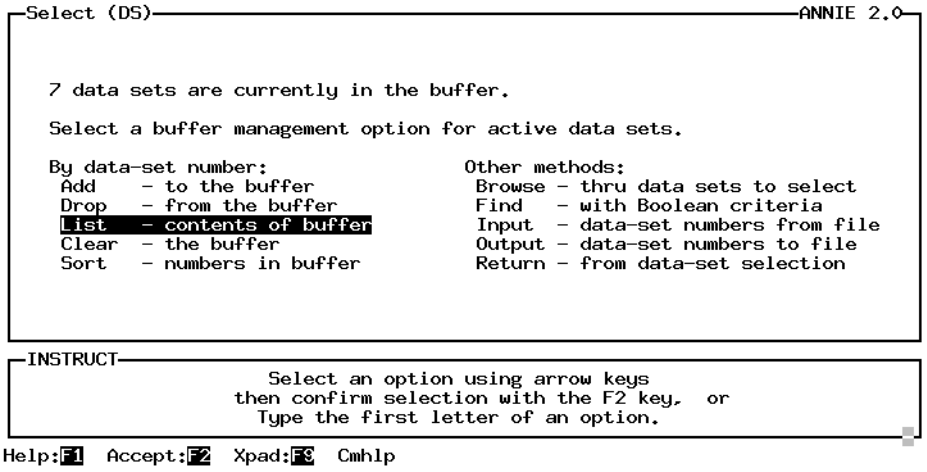
```
 5    6    7    8    9   10   11   21   22   23
24   25   26   27   28   29   30   31   32   33
34   35   36   37   38   39   40   41   42   43
44   45   46   47   48   49   50   51
```

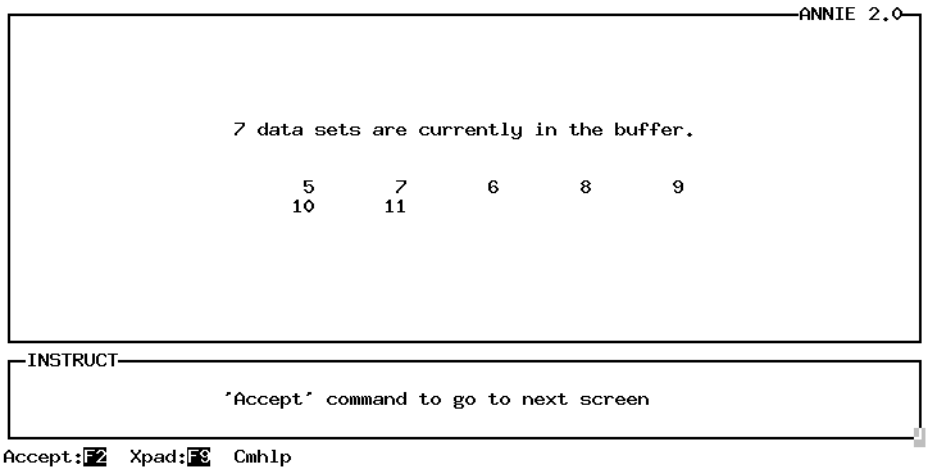
DATA SELECT SORT

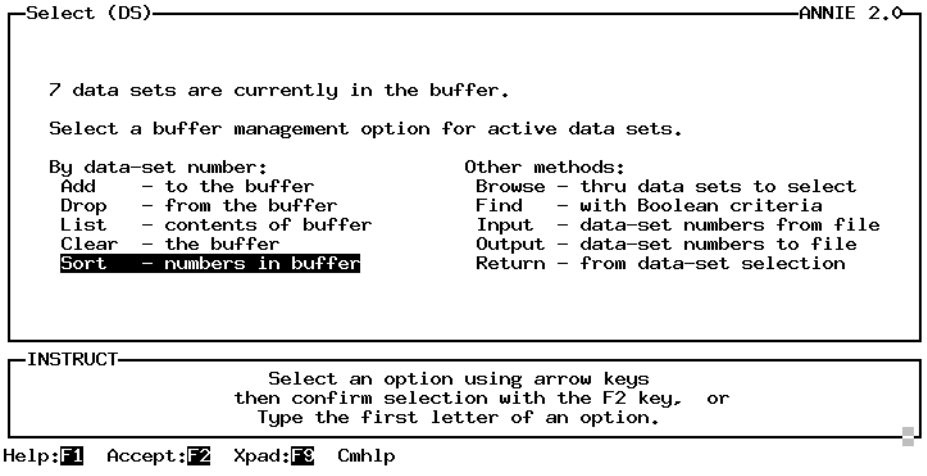
The Sort option is used to reorganize, in ascending order, the data-set numbers currently in the data-set buffer. Data-set numbers are stored in the buffer in the order they were added. When multiple Find, Browse, Input, or Add operations have been used to populate the data-set buffer, the data-set numbers may not be in sequential order. Data-set numbers will be used in the order they are stored in the buffer; if sequential order is desired or required, Sort can be used.

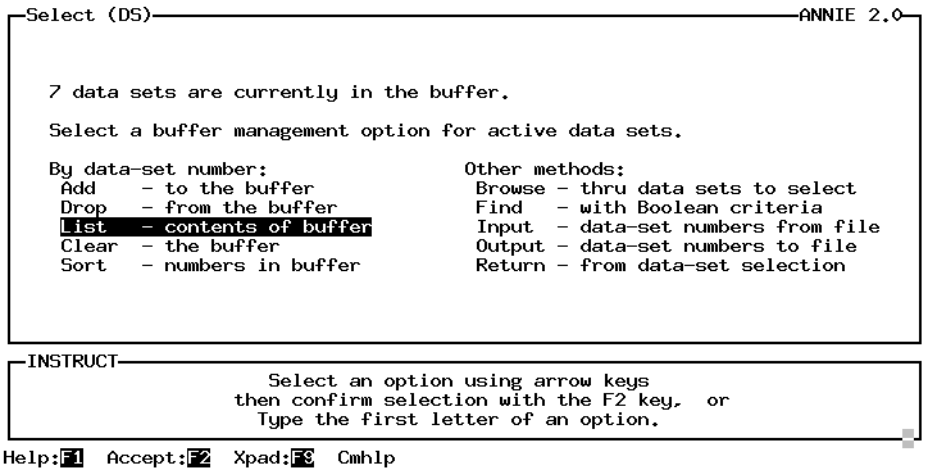
There are no steps under Sort.

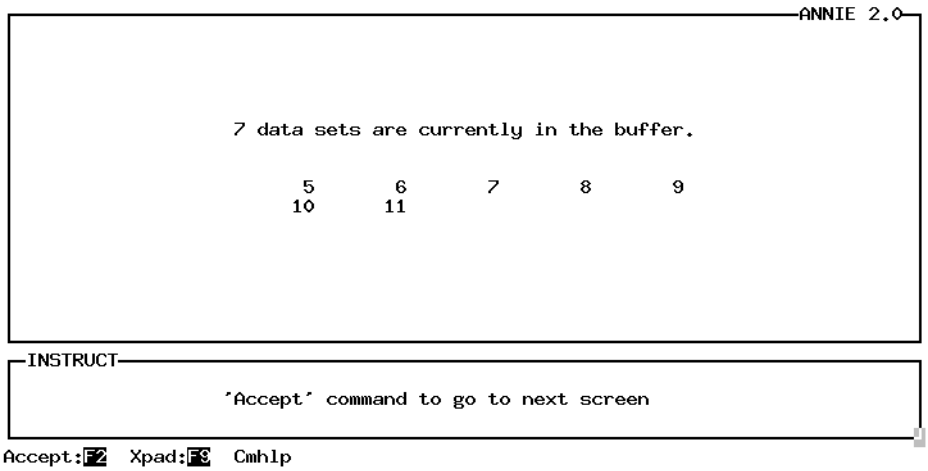
In the example, the data-set buffer contains seven data-set numbers. The List option shows that these numbers are not in numerical order. Sort was selected to order the numbers. The List option then shows that the numbers have been reordered.






Select (DS)
ANNIE 2.0
7 data sets are currently in the buffer.
Select a buffer management option for active data sets.
By data-set number:
Add - to the buffer
Drop - from the buffer
List - contents of buffer
Clear - the buffer
Sort - numbers in buffer
Other methods:
Browse - thru data sets to select
Find - with Boolean criteria
Input - data-set numbers from file
Output - data-set numbers to file
Return - from data-set selection
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp


Select (DS)
ANNIE 2.0
7 data sets are currently in the buffer.
Select a buffer management option for active data sets.
By data-set number:
Add - to the buffer
Drop - from the buffer
List - contents of buffer
Clear - the buffer
Sort - numbers in buffer
Other methods:
Browse - thru data sets to select
Find - with Boolean criteria
Input - data-set numbers from file
Output - data-set numbers to file
Return - from data-set selection
INSTRUCT
Select an option using arrow keys
then confirm selection with the F2 key, or
Type the first letter of an option.
Help:F1 Accept:F2 Xpad:F3 Cmhlp


ANNIE 2.0
7 data sets are currently in the buffer.
5 6 7 8 9
10 11
INSTRUCT
'Accept' command to go to next screen
Accept:F2 Xpad:F3 Cmhlp

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APPENDIXES

APPENDIX A. DATA-SET ATTRIBUTES

Name	Type	Length	Update	Data-set type		Description
				Time	Table	
ACODE	Int	1	Yes	Opt	Opt	Area units code, user defined.
AGENCY	Char	8	Yes	Opt	Opt	Agency code.
AQTYPE	Char	4	Yes	Opt	Opt	Aquifer type. U - unconfined single aquifer N - unconfined multiple aquifers C - confined single aquifer M - confined multiple aquifers X - mixed multiple aquifers
AZMUTH	Real	1	Yes	Opt	Opt	Azimuth, in decimal degrees from north of a straight line connecting points 85 and 10 percent of distance from gage to divide.
BASEQ	Real	1	Yes	Opt	Opt	Base discharge, in cubic feet per second.
BLNGTH	Real	1	Yes	Opt	Opt	Stream length, in miles, from gage to end of defined channel, blue line on topographic map.
BRANCH	Real	1	Yes	Opt	Opt	Integer id number of a channel segment.
BSLOPE	Real	1	Yes	Opt	Opt	Average basin slope, in feet per mile.
CHEAT	Int	1	Yes	Opt	Opt	Pointer to an associated data set.
COCODE	Int	1	Yes	Opt	Opt	County or parish code.
COMPFG	Int	1	No	Opt	No	Compression flag. 1 - yes, data are compressed (default) 2 - no, data are not compressed Compressed data will take up less space in the WDM file but may require a COPY operation to update data values.
CONTDA	Real	1	Yes	Opt	Opt	Drainage area, in square miles, that contributes to surface runoff.
DAREA	Real	1	Yes	Opt	Opt	Total drainage area, in square miles, including noncontributing areas.
DATUM	Real	1	Yes	Opt	Opt	Reference elevation, to mean sea level.
DCODE	Int	1	Yes	Opt	Opt	Attribute DCODE.
DEPH25	Real	1	Yes	Opt	Opt	Flow depth, in feet. Corresponding to the difference between the 25-percent flow duration gage height and point of zero flow.
DEPTH	Real	1	Yes	Opt	Opt	Sampling depth, in feet, at which observation was made.
DESCRP	Char	80	Yes	Opt	Opt	Data-set description. Might include name and/or location, or some anedotal information.
DSCODE	Int	1	Yes	Opt	Opt	State code of the Geological Survey office that operates the station. Usually the same as the state code (STFIPS).
EL1085	Real	1	Yes	Opt	Opt	Average of channel elevations, in feet above mean sea level, at points 10 and 85 percent of stream length upstream from gage.
EL5000	Real	1	Yes	Opt	Opt	Percent of basin above elevation 5,000 feet, mean sea level.
EL6000	Real	1	Yes	Opt	Opt	Percent of basin above elevation 6,000 feet, mean sea level.
ELEV	Real	1	Yes	Opt	Opt	Elevation (mean sea level).
FOREST	Real	1	Yes	Opt	Opt	Forested area, in percent of contributing drainage area, measured by the grid sampling methods.
FROST	Real	1	Yes	Opt	Opt	Mean frost depth on February 28, in inches.
GCODE	Int	1	Yes	Opt	Opt	Angle (slope) code, user defined.
GLACER	Real	1	Yes	Opt	Opt	Area of glaciers, in percent of contributing drainage area.
GUCODE	Char	12	Yes	Opt	Opt	Geologic unit code.
H01002	Real	1	Yes	Opt	Opt	Annual maximum 1-day mean discharge, in cubic feet per second for 2-year recurrence interval, defined by log-Pearson Type III fitting.
H01005	Real	1	Yes	Opt	Opt	Annual maximum 1-day mean discharge, in cubic feet per second for 5-year recurrence interval, defined by log-Pearson Type III fitting.
H01010	Real	1	Yes	Opt	Opt	Annual maximum 1-day mean discharge, in cubic feet per second for 10-year recurrence interval, defined by log-Pearson Type III fitting.

Name	Type	Length	Update	Data-set type		Description
				Time	Table	
H01020	Real	1	Yes	Opt	Opt	Annual maximum 1-day mean discharge, in cubic feet per second for 20-year recurrence interval, defined by log-Pearson Type III fitting.
H01025	Real	1	Yes	Opt	Opt	Annual maximum 1-day mean discharge, in cubic feet per second for 25-year recurrence interval, defined by log-Pearson Type III fitting.
H01050	Real	1	Yes	Opt	Opt	Annual maximum 1-day mean discharge, in cubic feet per second for 50-year recurrence interval, defined by log-Pearson Type III fitting.
H01100	Real	1	Yes	Opt	Opt	Annual maximum 1-day mean discharge, in cubic feet per second for 100-year recurrence interval, defined by log-Pearson Type III fitting.
H03002	Real	1	Yes	Opt	Opt	Annual maximum 3-day mean discharge, in cubic feet per second for 2-year recurrence interval, defined by log-Pearson Type III fitting.
H03005	Real	1	Yes	Opt	Opt	Annual maximum 3-day mean discharge, in cubic feet per second for 5-year recurrence interval, defined by log-Pearson Type III fitting.
H03010	Real	1	Yes	Opt	Opt	Annual maximum 3-day mean discharge, in cubic feet per second for 10-year recurrence interval, defined by log-Pearson Type III fitting.
H03020	Real	1	Yes	Opt	Opt	Annual maximum 3-day mean discharge, in cubic feet per second for 20-year recurrence interval, defined by log-Pearson Type III fitting.
H03025	Real	1	Yes	Opt	Opt	Annual maximum 3-day mean discharge, in cubic feet per second for 25-year recurrence interval, defined by log-Pearson Type III fitting.
H03050	Real	1	Yes	Opt	Opt	Annual maximum 3-day mean discharge, in cubic feet per second for 50-year recurrence interval, defined by log-Pearson Type III fitting.
H03100	Real	1	Yes	Opt	Opt	Annual maximum 3-day mean discharge, in cubic feet per second for 100-year recurrence interval, defined by log-Pearson Type III fitting.
H07002	Real	1	Yes	Opt	Opt	Annual maximum 7-day mean discharge, in cubic feet per second for 2-year recurrence interval, defined by log-Pearson Type III fitting.
H07005	Real	1	Yes	Opt	Opt	Annual maximum 7-day mean discharge, in cubic feet per second for 5-year recurrence interval, defined by log-Pearson Type III fitting.
H07010	Real	1	Yes	Opt	Opt	Annual maximum 7-day mean discharge, in cubic feet per second for 10-year recurrence interval, defined by log-Pearson Type III fitting.
H07020	Real	1	Yes	Opt	Opt	Annual maximum 7-day mean discharge, in cubic feet per second for 20-year recurrence interval, defined by log-Pearson Type III fitting.
H07025	Real	1	Yes	Opt	Opt	Annual maximum 7-day mean discharge, in cubic feet per second for 25-year recurrence interval, defined by log-Pearson Type III fitting.
H07050	Real	1	Yes	Opt	Opt	Annual maximum 7-day mean discharge, in cubic feet per second for 50-year recurrence interval, defined by log-Pearson Type III fitting.
H07100	Real	1	Yes	Opt	Opt	Annual maximum 7-day mean discharge, in cubic feet per second for 100-year recurrence interval, defined by log-Pearson Type III fitting.
H15002	Real	1	Yes	Opt	Opt	Annual maximum 15-day mean discharge, in cubic feet per second for 2-year recurrence interval, defined by log-Pearson Type III fitting.
H15005	Real	1	Yes	Opt	Opt	Annual maximum 15-day mean discharge, in cubic feet per second for 5-year recurrence interval, defined by log-Pearson Type III fitting.
H15010	Real	1	Yes	Opt	Opt	Annual maximum 15-day mean discharge, in cubic feet per second for 10-year recurrence interval, defined by log-Pearson Type III fitting.
H15020	Real	1	Yes	Opt	Opt	Annual maximum 15-day mean discharge, in cubic feet per second for 20-year recurrence interval, defined by log-Pearson Type III fitting.
H15025	Real	1	Yes	Opt	Opt	Annual maximum 15-day mean discharge, in cubic feet per second for 25-year recurrence interval, defined by log-Pearson Type III fitting.
H15050	Real	1	Yes	Opt	Opt	Annual maximum 15-day mean discharge, in cubic feet per second for 50-year recurrence interval, defined by log-Pearson Type III fitting.
H15100	Real	1	Yes	Opt	Opt	Annual maximum 15-day mean discharge, in cubic feet per second for 100-year recurrence interval, defined by log-Pearson Type III fitting.
H30002	Real	1	Yes	Opt	Opt	Annual maximum 30-day mean discharge, in cubic feet per second for 2-year recurrence interval, defined by log-Pearson Type III fitting.
H30005	Real	1	Yes	Opt	Opt	Annual maximum 30-day mean discharge, in cubic feet per second for 5-year recurrence interval, defined by log-Pearson Type III fitting.
H30010	Real	1	Yes	Opt	Opt	Annual maximum 30-day mean discharge, in cubic feet per second for 10-year recurrence interval, defined by log-Pearson Type III fitting.

Name	Type	Length	Update	Data-set type		Description
				Time	Table	
H30020	Real	1	Yes	Opt	Opt	Annual maximum 30-day mean discharge, in cubic feet per second for 20-year recurrence interval, defined by log-Pearson Type III fitting.
H30025	Real	1	Yes	Opt	Opt	Annual maximum 30-day mean discharge, in cubic feet per second for 25-year recurrence interval, defined by log-Pearson Type III fitting.
H30050	Real	1	Yes	Opt	Opt	Annual maximum 30-day mean discharge, in cubic feet per second for 50-year recurrence interval, defined by log-Pearson Type III fitting.
H30100	Real	1	Yes	Opt	Opt	Annual maximum 30-day mean discharge, in cubic feet per second for 100-year recurrence interval, defined by log-Pearson Type III fitting.
HUCODE	Int	1	Yes	Opt	Opt	Hydrologic unit code (8 digits). These codes are given in the U.S. Geological Survey map series "State Hydrologic Unit Maps," Open-File Report 84-708.
I24-2.	Real	1	Yes	Opt	Opt	Precipitation intensity, 24-hour rainfall, in inches, expected on the average of once each 2 years.
I24010	Real	1	Yes	Opt	Opt	Precipitation intensity, 24-hour rainfall, in inches, expected on the average of once each 10 years.
I24025	Real	1	Yes	Opt	Opt	Precipitation intensity, 24-hour rainfall, in inches, expected on the average of once each 25 years.
I24050	Real	1	Yes	Opt	Opt	Precipitation intensity, 24-hour rainfall, in inches, expected on the average of once each 50 years.
I24100	Real	1	Yes	Opt	Opt	Precipitation intensity, 24-hour rainfall, in inches, expected on the average of once each 100 years.
ISTAID	Int	1	Yes	Opt	Opt	Station identification number, as an integer.
J407BQ	Real	1	Yes	Opt	Opt	Base gage discharge.
J407BY	Int	1	Yes	Opt	Opt	Year to begin analysis, used to identify subset of available record.
J407EY	Int	1	Yes	Opt	Opt	Year to end analysis, used to identify subset of available record.
J407GS	Real	1	Yes	Opt	Opt	Generalized skew.
J407HO	Real	1	Yes	Opt	Opt	High outlier discharge criterion.
J407HP	Int	1	Yes	Opt	Opt	Historic peak option. 1 - include historic peaks 2 - exclude historic peaks
J407LO	Real	1	Yes	Opt	Opt	Low outlier discharge criterion.
J407NH	Int	1	Yes	Opt	Opt	Number of historic peaks.
J407SE	Real	1	Yes	Opt	Opt	Root mean square error of generalized skew.
J407SO	Int	1	Yes	Opt	Opt	Generalized skew option. -1 - station skew 0 - weighted skew 1 - generalized skew
J407UR	Int	1	Yes	Opt	Opt	Include urban regulated peaks. 1 - no 2 - yes
JANAVE	Real	1	Yes	Opt	Opt	Mean monthly temperature for January, in degrees Fahrenheit.
JANMIN	Real	1	Yes	Opt	Opt	Mean minimum January temperature, in degrees Fahrenheit.
JULAVE	Real	1	Yes	Opt	Opt	Mean monthly temperature for July, in degrees Fahrenheit.
JULMAX	Real	1	Yes	Opt	Opt	Mean maximum July temperature, in degrees Fahrenheit.
KENPLV	Real	1	Yes	Opt	Opt	P-level for Kendall Tau statistic.
KENSLP	Real	1	Yes	Opt	Opt	Median slope of time-series trend.
KENTAU	Real	1	Yes	Opt	Opt	Kendall Tau statistic for time-series data.
L01002	Real	1	Yes	Opt	Opt	Annual minimum 1-day mean discharge, in cubic feet per second, for 2-year recurrence interval, defined by log-Pearson Type III fitting.
L01010	Real	1	Yes	Opt	Opt	Annual minimum 1-day mean discharge, in cubic feet per second, for 10-year recurrence interval, defined by log-Pearson Type III fitting.
L01020	Real	1	Yes	Opt	Opt	Annual minimum 1-day mean discharge, in cubic feet per second, for 20-year recurrence interval, defined by log-Pearson Type III fitting.
L03002	Real	1	Yes	Opt	Opt	Annual minimum 3-day mean discharge, in cubic feet per second, for 2-year recurrence interval, defined by log-Pearson Type III fitting.

Name	Type	Length	Update	Data-set type		Description
				Time	Table	
L03010	Real	1	Yes	Opt	Opt	Annual minimum 3-day mean discharge, in cubic feet per second, for 10-year recurrence interval, defined by log-Pearson Type III fitting.
L03020	Real	1	Yes	Opt	Opt	Annual minimum 3-day mean discharge, in cubic feet per second, for 20-year recurrence interval, defined by log-Pearson Type III fitting.
L07002	Real	1	Yes	Opt	Opt	Annual minimum 7-day mean discharge, in cubic feet per second, for 2-year recurrence interval, defined by log-Pearson Type III fitting.
L07005	Real	1	Yes	Opt	Opt	Annual minimum 7-day mean discharge, in cubic feet per second, for 5-year recurrence interval, defined by log-Pearson Type III fitting.
L07010	Real	1	Yes	Opt	Opt	Annual minimum 7-day mean discharge, in cubic feet per second, for 10-year recurrence interval, defined by log-Pearson Type III fitting.
L07020	Real	1	Yes	Opt	Opt	Annual minimum 7-day mean discharge, in cubic feet per second, for 20-year recurrence interval, defined by log-Pearson Type III fitting.
L14002	Real	1	Yes	Opt	Opt	Annual minimum 14-day mean discharge, in cubic feet per second, for 2-year recurrence interval, defined by log-Pearson Type III fitting.
L14010	Real	1	Yes	Opt	Opt	Annual minimum 14-day mean discharge, in cubic feet per second, for 10-year recurrence interval, defined by log-Pearson Type III fitting.
L14020	Real	1	Yes	Opt	Opt	Annual minimum 14-day mean discharge, in cubic feet per second, for 20-year recurrence interval, defined by log-Pearson Type III fitting.
L30002	Real	1	Yes	Opt	Opt	Annual minimum 30-day mean discharge, in cubic feet per second, for 2-year recurrence interval, defined by log-Pearson Type III fitting.
L30010	Real	1	Yes	Opt	Opt	Annual minimum 30-day mean discharge, in cubic feet per second, for 10-year recurrence interval, defined by log-Pearson Type III fitting.
L30020	Real	1	Yes	Opt	Opt	Annual minimum 30-day mean discharge, in cubic feet per second, for 20-year recurrence interval, defined by log-Pearson Type III fitting.
L90002	Real	1	Yes	Opt	Opt	Annual minimum 90-day mean discharge, in cubic feet per second, for 2-year recurrence interval, defined by log-Pearson Type III fitting.
L90010	Real	1	Yes	Opt	Opt	Annual minimum 90-day mean discharge, in cubic feet per second, for 10-year recurrence interval, defined by log-Pearson Type III fitting.
L90020	Real	1	Yes	Opt	Opt	Annual minimum 90-day mean discharge, in cubic feet per second, for 20-year recurrence interval, defined by log-Pearson Type III fitting.
LAKE	Real	1	Yes	Opt	Opt	Area of lakes and ponds in percent of contributing drainage area.
LATCTR	Real	1	Yes	Opt	Opt	Latitude of center of basin, decimal degrees.
LATDEG	Real	1	Yes	Opt	Opt	Latitude in decimal degrees.
LATDMS	Int	1	Yes	Opt	Opt	Latitude in degrees, minutes, seconds (dddmmss).
LCODE	Int	1	Yes	Opt	Opt	Length units code, user defined.
LENGTH	Real	1	Yes	Opt	Opt	Channel length, units user defined.
LKEVAP	Real	1	Yes	Opt	Opt	Mean annual lake evaporation, in inches.
LNGCTR	Real	1	Yes	Opt	Opt	Longitude of center of basin, decimal degrees.
LNGDEG	Real	1	Yes	Opt	Opt	Longitude in decimal degrees.
LNGDMS	Int	1	Yes	Opt	Opt	Longitude in degrees, minutes, seconds (dddmmss).
LOESS	Real	1	Yes	Opt	Opt	Depth of surficial loess, in feet.
MARMAX	Real	1	Yes	Opt	Opt	Mean maximum March temperature, in degrees Fahrenheit.
MAXVAL	Real	1	Yes	Opt	No	Maximum value in data set, general use.
MEANND	Real	1	Yes	Opt	Opt	Mean of the logarithms, base 10, of annual n-day high- or low-flow statistic.
MEANPK	Real	1	Yes	Opt	Opt	Mean of the logarithms, base 10, of systematic annual peak discharges.
MEANVL	Real	1	Yes	Opt	No	Mean of values in data set, general use.
MINVAL	Real	1	Yes	Opt	No	Minimum value in data set, general use.
NONZRO	Int	1	Yes	Opt	No	Number of nonzero values in the time series.
NUMZRO	Int	1	Yes	Opt	No	Number of zero values in the time series.
P1.25	Real	1	Yes	Opt	Opt	Annual flood peak, in cubic feet per second, 1.25-year recurrence interval.
P10.	Real	1	Yes	Opt	Opt	Annual flood peak, in cubic feet per second, 10-year recurrence interval.

Name	Type	Length	Update	Data-set type		Description
				Time	Table	
P100.	Real	1	Yes	Opt	Opt	Annual flood peak, in cubic feet per second, 100-year recurrence interval.
P2.	Real	1	Yes	Opt	Opt	Annual flood peak, in cubic feet per second, 2-year recurrence interval.
P200.	Real	1	Yes	Opt	Opt	Annual flood peak, in cubic feet per second, 200-year recurrence interval.
P25.	Real	1	Yes	Opt	Opt	Annual flood peak, in cubic feet per second, 25-year recurrence interval.
P5.	Real	1	Yes	Opt	Opt	Annual flood peak, in cubic feet per second, 5-year recurrence interval.
P50.	Real	1	Yes	Opt	Opt	Annual flood peak, in cubic feet per second, 50-year recurrence interval.
P500.	Real	1	Yes	Opt	Opt	Annual flood peak, in cubic feet per second, 500-year recurrence interval.
PARMCD	Int	1	Yes	Opt	Opt	Parameter code.
PNEVAP	Real	1	Yes	Opt	Opt	Mean annual Class A pan evaporation, in inches.
PRCAPR	Real	1	Yes	Opt	Opt	April mean monthly precipitation, in inches.
PRCAUG	Real	1	Yes	Opt	Opt	August mean monthly precipitation, in inches.
PRCDEC	Real	1	Yes	Opt	Opt	December mean monthly precipitation, in inches.
PRCFEB	Real	1	Yes	Opt	Opt	February mean monthly precipitation, in inches.
PRCJAN	Real	1	Yes	Opt	Opt	January mean monthly precipitation, in inches.
PRCJUL	Real	1	Yes	Opt	Opt	July mean monthly precipitation, in inches.
PRCJUN	Real	1	Yes	Opt	Opt	June mean monthly precipitation, in inches.
PRCMAR	Real	1	Yes	Opt	Opt	March mean monthly precipitation, in inches.
PRCMAY	Real	1	Yes	Opt	Opt	May mean monthly precipitation, in inches.
PRCNOV	Real	1	Yes	Opt	Opt	November mean monthly precipitation, in inches.
PRCOCT	Real	1	Yes	Opt	Opt	October mean monthly precipitation, in inches.
PRCSEP	Real	1	Yes	Opt	Opt	September mean monthly precipitation, in inches.
PRECIP	Real	1	Yes	Opt	Opt	Mean annual precipitation, in inches.
QANN	Real	1	Yes	Opt	Opt	Mean annual discharge, in cubic feet per second.
QAPR	Real	1	Yes	Opt	Opt	Mean discharge, in cubic feet per second, for April.
QAUG	Real	1	Yes	Opt	Opt	Mean discharge, in cubic feet per second, for August.
QDEC	Real	1	Yes	Opt	Opt	Mean discharge, in cubic feet per second, for December.
QEX10P	Real	1	Yes	Opt	Opt	Discharge, in cubic feet per second, exceeded 10 percent of the time, defined by daily flow duration.
QEX25P	Real	1	Yes	Opt	Opt	Discharge, in cubic feet per second, exceeded 25 percent of the time, defined by daily flow duration.
QEX50P	Real	1	Yes	Opt	Opt	Discharge, in cubic feet per second, exceeded 50 percent of the time, defined by daily flow duration.
QEX70P	Real	1	Yes	Opt	Opt	Discharge, in cubic feet per second, exceeded 70 percent of the time, defined by daily flow duration.
QEX75P	Real	1	Yes	Opt	Opt	Discharge, in cubic feet per second, exceeded 75 percent of the time, defined by daily flow duration.
QEX90P	Real	1	Yes	Opt	Opt	Discharge, in cubic feet per second, exceeded 90 percent of the time, defined by daily flow duration.
QEX95P	Real	1	Yes	Opt	Opt	Discharge, in cubic feet per second, exceeded 95 percent of the time, defined by daily flow duration.
QFEB	Real	1	Yes	Opt	Opt	Mean discharge, in cubic feet per second, for February.
QJAN	Real	1	Yes	Opt	Opt	Mean discharge, in cubic feet per second, for January.
QJUL	Real	1	Yes	Opt	Opt	Mean discharge, in cubic feet per second, for July.
QJUN	Real	1	Yes	Opt	Opt	Mean discharge, in cubic feet per second, for June.
QMAR	Real	1	Yes	Opt	Opt	Mean discharge, in cubic feet per second, for March.
QMAY	Real	1	Yes	Opt	Opt	Mean discharge, in cubic feet per second, for May.
QNOV	Real	1	Yes	Opt	Opt	Mean discharge, in cubic feet per second, for November.
QOCT	Real	1	Yes	Opt	Opt	Mean discharge, in cubic feet per second, for October.
QSDANN	Real	1	Yes	Opt	Opt	Standard deviation of mean annual discharge, in cubic feet per second.

Name	Type	Length	Update	Data-set type		Description
				Time	Table	
QSDAPR	Real	1	Yes	Opt	Opt	Standard deviation, in cubic feet per second, of mean discharge for April.
QSDAUG	Real	1	Yes	Opt	Opt	Standard deviation, in cubic feet per second, of mean discharge for August.
QSDDEC	Real	1	Yes	Opt	Opt	Standard deviation, in cubic feet per second, of mean discharge for December.
QSDFEB	Real	1	Yes	Opt	Opt	Standard deviation, in cubic feet per second, of mean discharge for February.
QSDJAN	Real	1	Yes	Opt	Opt	Standard deviation, in cubic feet per second, of mean discharge for January.
QSDJUL	Real	1	Yes	Opt	Opt	Standard deviation, in cubic feet per second, of mean discharge for July.
QSDJUN	Real	1	Yes	Opt	Opt	Standard deviation, in cubic feet per second, of mean discharge for June.
QSDMAR	Real	1	Yes	Opt	Opt	Standard deviation, in cubic feet per second, of mean discharge for March.
QSDMAY	Real	1	Yes	Opt	Opt	Standard deviation, in cubic feet per second, of mean discharge for May.
QSDNOV	Real	1	Yes	Opt	Opt	Standard deviation, in cubic feet per second, of mean discharge for November.
QSDOCT	Real	1	Yes	Opt	Opt	Standard deviation, in cubic feet per second, of mean discharge for October.
QSDSEP	Real	1	Yes	Opt	Opt	Standard deviation, in cubic feet per second, of mean discharge for September.
QSEP	Real	1	Yes	Opt	Opt	Mean discharge, in cubic feet per second, for September.
RFOOT	Real	1	Yes	Opt	Opt	Distance from mouth of river, in feet.
RMILE	Real	1	Yes	Opt	Opt	Distance from basin outlet, in miles.
RWFLAG	Int	1	Yes	Opt	Opt	Read/Write flag. 0 - read and write 1 - read only
SDND	Real	1	Yes	Opt	Opt	Standard deviation of logarithms, base 10, of annual n-day high- or low-flow statistic.
SDPK	Real	1	Yes	Opt	Opt	Standard deviation of logarithms, base 10, of systematic annual peak discharges.
SEASBG	Int	1	Yes	Opt	Opt	Beginning month of a user-defined season. Will start on first day of the month. Used with attribute SEASND to define a specific time period, usually a year. January is month 1 and December is month 12.
SEASND	Int	1	Yes	Opt	Opt	Ending month of a user-defined season. Will end on the last day of the month. Used with attribute SEASBG to define a specific time period, usually a year. January is month 1 and December is month 12.
SITECO	Char	4	Yes	Opt	Opt	Site code. SW - stream SP - spring ES - estuary GW - well LK - lake or reservoir ME - meteorological
SKEWCF	Real	1	Yes	Opt	No	Skew coefficient of values in data set, general use.
SKWND	Real	1	Yes	Opt	Opt	Skew of logarithm, base 10, of annual n-day high- or low-flow statistic.
SKWPK	Real	1	Yes	Opt	Opt	Skew of logarithms, base 10, of systematic annual peak discharges.
SLOPE	Real	1	Yes	Opt	Opt	Slope, units are user defined.
SN002	Real	1	Yes	Opt	Opt	Maximum water equivalent, in inches, of snow cover as of March 15, 2-year recurrence interval.
SN010	Real	1	Yes	Opt	Opt	Maximum water equivalent, in inches, of snow cover as of March 15, 10-year recurrence interval.
SN025	Real	1	Yes	Opt	Opt	Maximum water equivalent, in inches, of snow cover as of March 15, 25-year recurrence interval.

Name	Type	Length	Update	Data-set type: Time	Data-set type: Table	Description
SN100	Real	1	Yes	Opt	Opt	Maximum water equivalent, in inches, of snow cover as of March 15, 100-year recurrence interval.
SNOAPR	Real	1	Yes	Opt	Opt	Mean water equivalent, in inches, of snow cover as of April 30.
SNOFAL	Real	1	Yes	Opt	Opt	Mean annual snowfall, in inches.
SNOMAR	Real	1	Yes	Opt	Opt	Mean water equivalent, in inches, of snow cover as of March 1.
SOILIN	Real	1	Yes	Opt	Opt	Soils index, in inches, a relative measure of potential infiltration (soil water storage).
STAID	Char	16	Yes	Opt	Opt	Station identification, up to 16 alpha-numeric characters.
STANAM	Char	48	Yes	Opt	Opt	Station name or description of the data set.
STATCD	Int	1	Yes	Opt	Opt	Statistics code.
STCODE	Char	4	Yes	Opt	Opt	Standard 2-character post office state abbreviation, includes DC - District of Columbia PR - Puerto Rico VI - Virgin Islands GU - Guam PI - Pacific Trust Territories Use NON for no state abbreviation.
STDDEV	Real	1	Yes	Opt	No	Standard deviation of values in data set, general use.
STFIPS	Int	1	Yes	Opt	Opt	State FIPS code.
STORAG	Real	1	Yes	Opt	Opt	Area of lakes, ponds, and swamps in percent of contributing drainage area, measured by the grid sampling methods.
SUBHUC	Int	1	Yes	Opt	Opt	Extension to hydrologic unit code (HUCODE). See the U.S. Geological Survey map series "State Hydrologic Unit Maps," Open-File Report 84-708.
TCODE	Int	1	No	Reqd	Opt	Time units code. 1 - seconds 4 - days 2 - minutes 5 - months 3 - hours 6 - years Used in combination with TSSTEP.
TGROUP	Int	1	No	Reqd	No	Unit for group pointers, depending on the time step of the data, may effect the speed of data retrievals. The default group pointer is 6 (years). See table 1 in users manual for recommended values. 3 - hours 6 - years 4 - days 7 - centuries 5 - months
TMTOPK	Real	1	Yes	Opt	Opt	Time, in hours, measured as time difference between center of mass of total rainfall and peak discharge.
TMZONE	Int	1	Yes	Opt	Opt	Time zone. Each time zone is represented as the number of hours to be added to, or subtracted from, Greenwich time. -4 - Atlantic Standard -8 - Pacific Standard -5 - Eastern Standard -9 - Yukon Standard -6 - Central Standard -10 - Alaska-Hawaii Standard -7 - Mountain Standard
TOLR	Real	1	No	Opt	No	Data compression tolerance. Data values within ± of TOLR will be considered the same value and compressed in the data set. Once data have been compressed, the original values cannot be retrieved.
TSBDY	Int	1	No	Opt	No	Starting day for time-series data in a data set. Defaults to day 1.
TSBHR	Int	1	No	Opt	No	Starting hour for time-series data in a data set. Defaults to hour 1.
TSBMO	Int	1	No	Opt	No	Starting month for time-series data in a data set. Defaults to month 1 (January).
TSBYR	Int	1	No	Reqd	No	Starting year for time-series data in a data set. Defaults to year 1900.
TSFILL	Real	1	No	Opt	Opt	Time-series filler value. This value will be used for missing values. The default is 0.0.

Name	Type	Length	Update	Data-set type		Description
				Time	Table	
TSFORM	Int	1	No	Reqd	No	Form of data. 1 - mean over the time step (default) 2 - total over the time step 3 - instantaneous @ time (end of time step) 4 - minimum over the time step 5 - maximum over the time step
TSPREC	Int	1	No	Opt	No	New group, new record flag. 0 - start new group at the end of the last group (default) 1 - start new group at the beginning of a record
TSPTAD	Int	1	Yes	Opt	No	Time series put aggregation/disaggregation code.
TSSTEP	Int	1	No	Reqd	Opt	Time step, in TCODE units (used in combination with TCODE).
TSTYPE	Char	4	Yes	Opt	Opt	User-defined four-character descriptor. Used to describe the contents of the data set, for example: PRCP, RAIN, SNOW - precipitation FLOW, DISC, PEAK - discharge TEMP, TMIN, TMAX - temperature EVAP, PET - evapotranspiration Some models and application programs may require a specific TSTYPE for data sets they use.
UBC024	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC025	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC026	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC027	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC028	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC029	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC030	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC031	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC038	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC039	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC040	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC066	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC067	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC068	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC069	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC073	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC074	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC166	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC167	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC169	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC170	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC182	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC183	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC184	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC185	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC186	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC187	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC188	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC189	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC190	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC191	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC192	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC193	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC194	Real	1	Yes	Opt	Opt	Defined by user or application.

Name	Type	Length	Update	Data-set type		Description
				Time	Table	
UBC195	Real	1	Yes	Opt	Opt	Defined by user or application.
UBC200	Real	1	Yes	Opt	Opt	Defined by user or application.
VALLGH	Real	1	Yes	Opt	Opt	Valley length, in miles, measured along general path of flood plain from gage to basin divide.
VBTIME	Int	1	No	Reqd	No	Variable time-step option for the data set 1 - all data are at the same time step 2 - time step may vary (default)
VCODE	Int	1	Yes	Opt	Opt	Volume units code, user defined.
VLCODE	Int	1	Yes	Opt	Opt	Velocity units code, user defined.
WELLDP	Real	1	Yes	Opt	Opt	Depth of well, in feet. The greatest depth at which water can enter the well.
WEMAR2	Real	1	Yes	Opt	Opt	Water equivalent, in inches, of snow cover as of the first week in March, 2-year recurrence interval.
WRCMN	Real	1	Yes	Opt	Opt	Mean of logarithms, base 10, of annual peak discharges after outlier and historic-peak adjustments.
WRCSD	Real	1	Yes	Opt	Opt	Standard deviation of logarithms, base 10, of annual peak discharges after outlier and historic-peak adjustments.
WRCSKW	Real	1	Yes	Opt	Opt	Skew of logarithms, base 10, of annual peak discharge after outlier and historic-peak adjustments and generalized skew weighting.
XSECLC	Real	1	Yes	Opt	Opt	Cross-section locater, distance in feet from left bank (as determined by facing downstream).
YRSDAY	Int	1	Yes	Opt	Opt	Number of years of daily-flow record.
YRSLOW	Int	1	Yes	Opt	Opt	Number of years of low-flow record.
YRSHPK	Int	1	Yes	Opt	Opt	Number of consecutive years used for historic-peak adjustment to flood-frequency data.
YRSPK	Int	1	Yes	Opt	Opt	Number of years of systematic peak flow record.

APPENDIX B. SPECIAL FILES

Three files are associated with the interaction between the user and the program. The optional TERM.DAT file is used to change some aspects of how the program operates. The ANNIE.LOG file records keystrokes entered during a program session. Error and warning messages are written to the ERROR.FIL file if problems arise during a program session. The ERROR.FIL file also can contain messages that document the processing sequence of the program.

TERM.DAT

A TERM.DAT file is used to override the default values of parameters that define the configuration of the computer system and the user's preferences. The program looks for a TERM.DAT file in the current directory. The parameters include terminal type, the program response to the Enter key, and graphics options. Table B.1 describes the TERM.DAT parameters showing the default values as set for DOS-based computers, for DG/UX-based (Data General/UNIX) computers, and for other UNIX-based computers. A parameter is overridden by specifying its keyword and the new value in the TERM.DAT file. One record is used to define each parameter; with the keyword beginning in column 1 and the value beginning in column 8.

Table B.1. TERM.DAT parameters

Parameter keyword	Default values			Valid values	Description
	DOS	DG/UX	Other UNIX		
TRMTYP	PC	VT100	VT100	PC VT100 OTHER	Terminal type.
MENCRA	NEXT	NEXT	NEXT	NONE DOWN NEXT	Program response to Enter key.
USRLEV	0	0	0	0 to 2	User experience level: 0=lots, 1=some, 2=none.
GRAPHS	YES	YES	YES	NO YES	Is a software library for graphics generation available?
GKSDIS	1	1100	4	0-9999[a]	GKS code number for workstation type for display terminal.
GKSPRT	2	102	4	0-9999[a]	GKS code number for workstation type for printer device.
GKSPLT	3	7475	4	0-9999[a]	GKS code number for workstation type for pen plotter.
GKSMET	4	24	4	0-9999[a]	GKS code number for metafile.
GKPREC	CHAR	STROKE	CHAR	STRING CHAR STROKE	Text precision.
GKSCFT	1	1	1	-9999 to 9999[a]	Text font for screen.
GKPRFT	1	-2808	1	-9999 to 9999[a]	Text font for printer.
GKPLFT	1	1	1	-9999 to 9999[a]	Text font for plotter.
BCOLOR	BLACK	BLACK	BLACK	WHITE BLACK OTHER	Background color of graphics screen display.
BGRED	0	0	0	0 to 100	Percent red for background of graphics screen display if BCOLOR=OTHER.
BGREEN	0	0	0	0 to 100	Percent green for background of graphics screen display if BCOLOR=OTHER.
BGBLUE	0	0	0	0 to 100	Percent blue for background of graphics screen display if BCOLOR=OTHER.
SYMSIZ	100	100	100	1 to 10000	Symbol size ratio in hundredths.
TXTEXF	133	100	100	0 to 200	Text expansion factor in hundredths.
TXTCHS	0	0	0	0 to 200	Text character spacing in hundredths.

[a]Refer to GKS documentation and README file supplied with the program to determine valid values for these parameters.

Many of the TERM.DAT parameters control graphical output, such as the specification of a graphics device, text font, symbol size, and background color. The values assigned to the graphics parameters depend on the software library used to implement the Graphical Kernel System (GKS). For information on overriding the graphics parameters on DOS-based computers, see the README file distributed with the program. For other computer platforms, see the README documentation that accompanies the program and the GKS library documentation for your system.

The value of the MENCRA parameter and the data panel type control how the program responds when the Enter key is pressed. Table B.2 describes the program response for the various combinations of MENCRA values and data panel type. The default value for the MENCRA parameter is "NEXT".

Table B.2. MENCRA values and corresponding program response

MENCRA	Data panel contents	Program response when Enter is pressed
NEXT	menu	Same as if Accept (F2) were executed: the highlighted menu option is selected and the program advances to the next screen.
	form	For all but the last field on the form, causes the cursor to advance to the next field. For the last field on the form, the response is the same as for Accept (F2)—the program advances to the next screen. (Note: usually the rightmost, lowest field is the "last" field in the form. Occasionally, however, it is not!)
	table	For each row, the cursor advances across the fields in the row. For all but the last row, the cursor advances from the last field in the row to the first field of the next row. For the last row, the cursor advances to the beginning of the last row. (Use Accept (F2) to advance to the next page of the table.)
	text	Same as if Accept (F2) were executed—the program advances to the next screen.
NONE	menu	No effect—it is ignored.
	form	Cursor is advanced to the next field. When the cursor is in the last field, the cursor cycles back to the first field.
	table	For each row, the cursor advances across the fields in the row. For all but the last row, the cursor advances from the last field in the row to the first field of the next row. For the last row, the cursor advances to the beginning of the last row. (Use Accept (F2) to advance to the next page of the table.)
	text	No effect—it is ignored.
DOWN	menu	Same as if the down arrow were pressed: the highlight bar moves to the next menu option. When the highlight bar is on the last menu option, it returns to the first menu option.
	form	Cursor is advanced to the next field. When the cursor is in the last field, the cursor cycles back to the first field.
	table	For each row, the cursor advances across the fields in the row. For all but the last row, the cursor advances from the last field in the row to the first field of the next row. For the last row, the cursor advances to the beginning of the last row. (Use Accept (F2) to advance to the next page of the table.)
	text	No effect—it is ignored.

Figure B.1 shows an example TERM.DAT file that overrides the default BLACK background color of the graphics display. The parameter BCOLOR is set to OTHER and the parameters BGRED and BGBLUE are set to 40 and 60, respectively. The resulting graphics screen display background will be a shade of purple. In addition to the parameters described in table B.1, there are five parameters that can be used to set the foreground and background colors of parts of the program screen on DOS-based computers. These parameters are described in table B.3.

Figure B.1. Example TERM.DAT.

```
BCOLOR OTHER
BGRED  40
BGREEN 0
BGBLUE 60
```

Table B.3. TERM.DAT parameters for color display (DOS-based computers)

Parameter keyword	Default value	Allowable values[a]	Description
CLRFRS	15	0 to 15	Standard foreground color.
CLRBKS	1	0 to 15	Standard background color.
CLRFRE	7	0 to 15	Foreground color for error messages in instruction panel.
CLRBKE	4	0 to 15	Background color for error messages in instruction panel.
CLRFRD	14	0 to 15	Color of first letter of commands in command mode.

[a]0-black, 1-blue, 2-green, 3-cyan, 4-red, 5-magenta, 6-brown, 7-light gray, 8-dark gray, 9-bright blue, 10-bright green, 11-bright cyan, 12-bright red, 13-bright magenta, 14-yellow, 15-white

ANNIE.LOG

A file named ANNIE.LOG is created each time the program is run. This file contains the sequence of keystrokes entered during a program session. It may be used as an input to the program in a later session. To keep the sequence of keystrokes, you must rename the file because the program will overwrite any file named ANNIE.LOG. Keystrokes of nonprinting keys, such as the backspace and function keys, are represented in the file by special codes. Table B.4 lists each code and its definition. Menu options are chosen in one of two ways—either press the first letter(s) of a menu option, or position the cursor with the arrow keys and then Accept (F2). Using the first method will make the log file easier to interpret and modify. Using the letter "x" for making option selections will also help. Table B.5 contains an annotated example log file for a program session that opens a WDM file and gets a summary of the contents of the file.

Table B.4. Codes used for nonprinting characters in a log file

Code	User's keystrokes	Associated command
#227	; or Esc[a]	
#208	Backspace	
#213	Return or Enter	
#301	↑	
#302	↓	
#303	→	
#304	←	
#307	Page Up	
#308	Page Down	
#401	F1	Help
#402	F2	Accept
#403	F3	
#404	F4	Prev
#405	F5	Limits
#406	F6	Intrpt
#407	F7	Status
#408	F8	Quiet
#409	F9	Xpad
#410	F10	Top

[a]The Escape key is only functional on DOS-based computers.

Table B.5. Description of example log file

Line	Contents	Explanation
1	fotest.wdm	The File option was selected from the Opening screen menu. The Open option was selected from the File (F) screen menu. The file name test.wdm was entered in the Open (FO) screen.
2	#402	Accept, function key F2, was executed, causing the test.wdm file to be opened.
3	s	The Summarize option was selected from the File (F) screen menu.
4	#402	After the summary of the contents of the test.wdm file had been viewed, Accept, function key F2, was executed.
5	rr	The Return option was selected from the File (F) screen menu. The Return option was selected from the Opening screen menu.

Log files can be used to easily repeat a task, or they can be modified to perform a similar task. A log file may contain all of the keystrokes required for a complete program session, or it may contain the keystrokes for part of a program session. For example, all of the keystrokes needed to plot the results of a model run can be saved and then reused for the next model run. A subset of a session might consist of the keystrokes required to select a particular set of data sets; this log file would be used whenever that set of data was needed.

A log file may be entered at any point in the program by typing "@"; in the small panel that appears, type the name of the log file. The program will run using the input from the file just as if it were being typed in. The program and the log file must be synchronized; if the keystrokes in the log file get out of sync with the program, the program response may produce unpredictable results. A common cause of synchronization problems involves output files. If an output file did not exist when the log file was generated and does exist when the log file is read by the program, the program may ask if it is OK to overwrite the existing file. Because the keystrokes required to answer this question are not in the log file, the program will probably do something unexpected.

APPENDIX C. RETURN CODES

General

0	No problems.
-02	Problem opening message WDM file, probably problem with program installation.
-63	Data-set type is invalid for requested operation.
-71	Requested new data set already exists.
-72	Requested old data set does not exist.
-73	Data set requested as new already exists.
-81	Requested data set does not exist.
-82	Requested data set exists but is wrong data-set type.
-83	WDM file already open, cannot build it.
-84	Data-set number is out of valid range.
-85	Trying to write to a read-only data set.
-88	Can have only one WDM file open at a time; close the open file before you try to open another file.
-89	May be a corrupted WDM file, or may be trying to open a file that is not a WDM file. A WDM file may be corrupted by using some editors to try to look at the file contents.

Attributes

-101	Incorrect value for a character attribute.
-102	The requested attribute already exists on the data set and cannot be modified.
-103	No more space available in the data set for attributes.
-104	There is already data in the data set, so the requested attribute cannot be modified.
-105	The requested attribute is not valid for the type of data set.
-106	The requested attribute cannot be deleted, it is required.
-107	The requested attribute is not present in the data set.
-108	Incorrect value for an integer attribute.
-109	Incorrect value for a real attribute.
-110	The requested attribute is not known to this program; it is not found on message file. This may be caused if you have a test release of a program that uses the WDM file.
-111	The requested attribute name not found (no match).
-112	The requested attribute name was incomplete, one or more attributes exist that match the supplied name.
-121	No more space available in the data set for attributes.

Time series

-04	Copy/Update operation failed due to data overlap problem. Use the Delete option to remove the unwanted data from the data set, and then try Copy/Update again.
-05	Copy/Update operation failed due to data overlap problem. Use the Delete option to remove the unwanted data from the data set, and then try Copy/Update again.
-06	There is no data present in the data set.
-08	Problem with dates in the data set.
-09	There is data present in current data group.
-10	There is no data in this data group.
-11	Data have not started in this first data group, or there is only missing data in the data group.
-14	The requested date is not within valid range for the data set.
-15	When the data set is a constant time step (VBTIME=1), the requested time step and units (TSSTEP, TCODE) must agree with the attribute values in the data set.
-20	There is a discrepancy between what the data set contains and what the program expects it to contain. This may occur when the data set has been corrupted because the system crashed or the user broke out of the program while updating the data set.
-21	There is a discrepancy between the time period that should be contained in the data set and the time period that was found. This may occur when the data set has been corrupted because the system crashed or the user broke out of the program while updating the data set.

Table

-22 Could not locate table template.
-23 Not a valid table.
-24 Not a valid associated table.
-25 Template already exists.
-26 Cannot add another table.
-27 No table to return info about.
-28 Table does not exist yet.
-30 More than whole table / want more than whole table.
-31 More than whole extension / want more than whole extension.
-32 Data header does not match.
-33 Problems with row/space specs.
-61 The requested data set does not exist.
-62 The requested new data set already exists.

APPENDIX D. GLOSSARY OF TERMS

Attribute. A variable used to characterize and identify a data set (see Appendix A).

Buffer. A collection of data-set numbers.

Data compression. When a sequence of time-series values are the same, the value and the number of those values are stored instead of repeated storage of the same value.

Data-set. A collection of related records in a WDM file that contains data on a time series or a table of associated values. Each data set includes descriptive attributes and data group pointers as well as the basic data.

Data-set number. A number from 1 to 32,000 assigned to a data set stored in a WDM file.

Direct-access file. A file in which records can be randomly written and read.

Flat file. A sequential text file of data.

GKS (Graphical Kernal System). An American National Standards Institute (ANSI) and Federal Information Processing Standard (FIPS) graphics standard implemented by many software vendors with a set of callable routines.

Log file. A file created by the program to store the sequences of keystrokes entered during a program session.

Message file. A read-only, binary direct-access file that contains all information needed to define the appearance and contents of the program screens as well as the names, definitions, and characteristics of all available attributes. Attempting to modify this file with an editor will corrupt it.

Panel. Subset of a screen bounded by a drawn rectangle.

Quality code. Number from 0 to 30 tagged to each time step in a time-series data set and used to quantify the quality of the data, with 0 being best and 30 being worst.

Screen. The 80-column (character) by 24-row (line) image containing the menus, forms, tables, text, and panels displayed on the monitor.

TERM.DAT file. A file used to override the default values of parameters that define the configuration of the computer system and the user's preferences.

Time series. Values of a measured or calculated variable over time at a regular or irregular time interval.

WDM (Watershed Data Management). A binary, direct-access file used to store hydrologic, hydraulic, meteorologic, water-quality, and physiographic data. The file is organized into data sets. Attempting to modify this file with an editor will corrupt it.