

Chapter 3

Using HEC-DSSVue: An Overview

With **HEC-DSSVue** you can access, visualize, and manipulate data stored in HEC-DSS database files using a variety of utilities and functions available from the main HEC-DSSVue screen, shown in Figure 3.1.

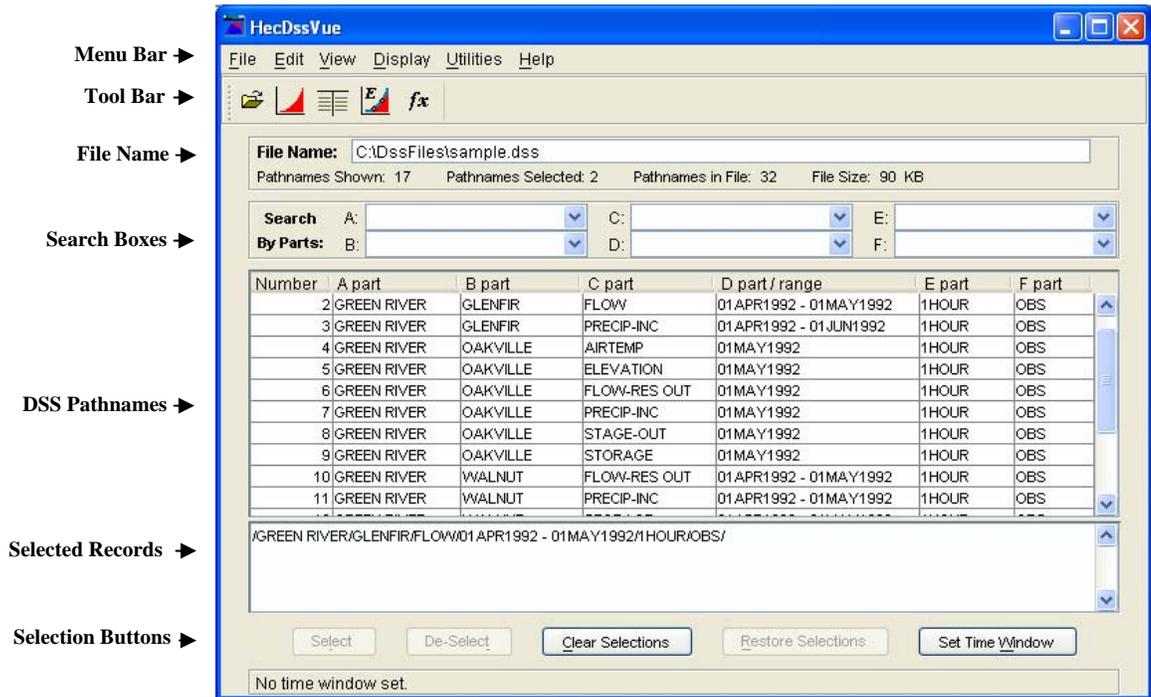


Figure 3.1 HEC-DSSVue Main Window

This chapter provides an overview of HEC-DSSVue and its basic operations using the main menu and selection buttons.

3.1 HEC-DSSVue Main Screen

The main screen of HEC-DSSVue consists of a **Menu Bar**, **Tool Bar**, **File Name** box, **Search boxes**, a list of HEC-DSS **Pathnames**, a list of **Selected Pathnames**, and **Selection Buttons**. The following sections describe these features in detail.

3.1.1 Menu Bar

Main menu options in HEC-DSSVue (Figure 3.2) allow you to search for, select, and edit HEC-DSS data sets; control the display of pathnames; and access plots and tables, among other tasks. The HEC-DSSVue menus are as follows:



Figure 3.2 HEC-DSSVue Menu

- File** File menu commands are **New, Open, Close DSS File(s), Print Catalog Preview, Print Catalog** and **Exit**. The file menu also lists the last 6 most recently used files.
- Edit** Edit menu commands are **Tabular Edit..., Graphical Edit...,** and **Select All**.
- View** The View menu allows you to customize the display of HEC-DSS pathnames, refresh the catalog and search pathnames. Available commands are **Pathname List, Pathname Parts, Condensed Catalog, No Pathnames, Refresh Catalog, Search pathnames by string,** and **Search pathnames by parts**.
- Display** Use the Display menu to open plots and tables with the **Plot** and **Tabulate** commands. You may also set the **Plot Data Options of Normalize,** and **Synch data set times to first**.
- Utilities** Utilities menu provides access to **Math Functions, Manual Data Entry** (Time Series and Paired Data), and it allows you to **Rename Records, Duplicate Records, Copy Records, Delete Records, Undelete Records, Merge Files, Squeeze,** access the Script Button Frame with the **Script Browser** command, access the **Script Selector,** and view **HEC-DSS Status**.

3.1.2 Tool Bar

Tool bar buttons provide shortcuts to frequently used menu commands:



Opens a **File Browser**, which allows you to select a HEC-DSS file (same as **Open** in the **File** menu).



Plots the selected data (same as **Plot** in the **Display** menu)



Displays the selected data in table form (same as **Tabulate** in the **Display** menu).



Graphically Edit the selected data (same as **Graphical Edit** in the **Edit** menu).



Open the **Math Functions** dialog with the selected data.

3.1.3 File Name

The **File Name** box (Figure 3.3) displays the file name and location of the currently open HEC-DSS file. Also, if you know the exact location and name of the HEC-DSS database file you wish to open, you can type it directly into the File Name box to open it, then press the Enter key.

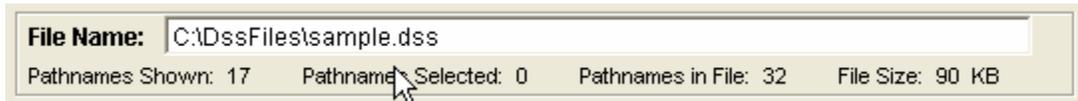


Figure 3.3 File Name Box

Beneath the file name are the number of pathnames in the list, the number selected, the total number in the database file, and the size of the database file. If you do not have access to write to the file, the words “Read Only” will be displayed following the file size.

3.1.4 Search Boxes

The Data Selection List also provides a search area where you can **Search Pathnames** (Figure 3.4) or **Search Parts** (Figure 3.5) of an open HEC-DSS file. The search method desired is set from the **View** menu.

To search and display all pathnames containing a specific string, type that string into the box and press the **Search** button. Those pathnames in the file that contain that string will be displayed in the list.

The **Search by Parts** option provides a selectable drop down list of the parts of all the pathnames in the file. When a part is selected, only those pathnames that match that part are shown.

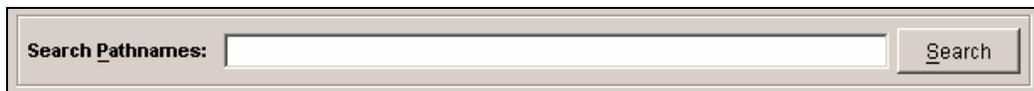


Figure 3.4 Search Pathnames option



Figure 3.5 Search by Parts option

3.1.5 List of HEC-DSS Pathnames

Once you have opened an HEC-DSS file, its pathnames appear in a list beneath the search area, either as a *Pathname List*, or by *Pathname Parts*, in *Condensed Catalog* format, or with *No Pathnames* displayed. (The No Pathnames option is typically used to access very large databases using only scripted functions.) These options are set from the View menu, as described in Section 3.4.1. Figure 3.6 shows the pathname parts displayed.

Number	A part	B part	C part	D part	E part	F part
5	GREEN RIVER	GLENFIR	PRECIP-INC	01APR1992	1HOUR	OBS
6	GREEN RIVER	GLENFIR	PRECIP-INC	01MAY1992	1HOUR	OBS
7	GREEN RIVER	GLENFIR	PRECIP-INC	01JUN1992	1HOUR	OBS
8	GREEN RIVER	OAKVILLE	AIRTEMP	01MAY1992	1HOUR	OBS
9	GREEN RIVER	OAKVILLE	ELEVATION	01MAY1992	1HOUR	OBS
10	GREEN RIVER	OAKVILLE	FLOW-RES OUT	01MAY1992	1HOUR	OBS
11	GREEN RIVER	OAKVILLE	PRECIP-INC	01MAY1992	1HOUR	OBS
12	GREEN RIVER	OAKVILLE	STAGE-OUT	01MAY1992	1HOUR	OBS

Figure 3.6 List of HEC-DSS Pathnames by Parts

3.1.6 Selected Pathnames

When you select a pathname (see Section 3.5), it appears beneath the list of all pathnames in the selection area (Figure 3.7). You can make the size of selected list taller or shorter by grabbing the separator line between the two lists with the mouse, and moving it up or down.



Figure 3.7 Selected Pathnames

3.1.7 Selection Buttons

There are five buttons at the bottom of the Data Selection List window (Figure 3.8).



Figure 3.8 Select, De-Select, Clear Selections, Restore Selections, and Set Time Window Buttons

- **Select:** You add a pathname to the selection list by highlighting it and clicking the **Select** button. Until you highlight a pathname, the Select button remains inactive. You can also do a “quick select,” if the selection list is empty, by highlighting a pathname, then pressing the plot or tabulate button.
- **De-Select:** To remove a pathname from the selection list, you highlight the pathname in the lower list then press the **De-Select** button.
- **Clear Selections:** You can remove all pathnames from the selection list by clicking the **Clear Selections** button.
- **Restore Selections:** The **Restore Selections** button restores all selections you have cleared or de-selected.
- **Set Time Window:** You can set the time window of the data to view with the **Set Time Window** button.

3.2 File Menu Operations

HEC-DSSVue's **File** menu allows you to create a **New** HEC-DSS file, **Open** an existing HEC-DSS file, **Close** the HEC-DSS file you have opened, show the **Print Catalog Preview**, **Print the Catalog**, open a recently opened file, and **Exit** the program. The following sections discuss these operations.

3.2.1 Creating a New HEC-DSS File

To create a new HEC-DSS database file, from the **File** menu, click **New**. When the **File** dialog box opens, type in a name for the new file and HEC-DSSVue will create it for you. Data can then be entered through the **Manual Data Entry** window from the **Utilities** menu. If you copy records from an existing file, the new DSS file does not need to exist; it will be created automatically.

3.2.2 Opening a HEC-DSS File

If you know the name of the HEC-DSS database file you wish to open, you can type the file name (including the path) directly into the **File Name** box (Figure 3.3). Otherwise, choose **Open** from the **File** menu or click the  button to select the HEC-DSS database file you want.

A **File Browser** window will open, as shown in Figure 3.9.

In the **File Browser** window, use the standard Windows controls to browse to the HEC-DSS file that you wish to open, then click **Open**.

The name of the file you have selected will now appear in the **File Name** box (Figure 3.3), and the pathnames of the records contained in the file will display in the **List of HEC-DSS Pathnames**.

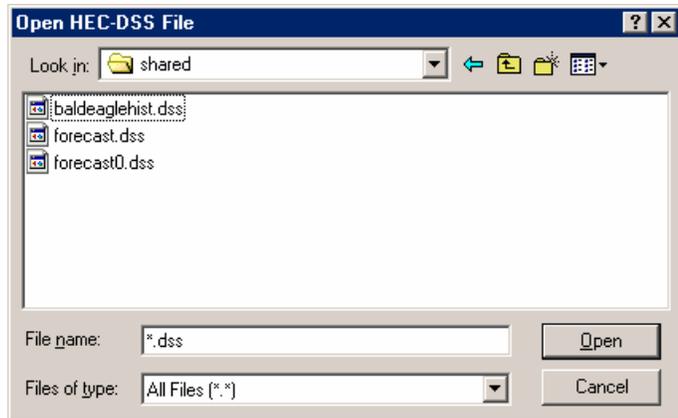


Figure 3.9 Open HEC-DSS File

3.2.3 Closing the HEC-DSS File

To close the HEC-DSS database file that you currently have opened, from the **File** menu, click **Close**. This will allow some older MS-DOS based programs to access the file, or for you to rename or delete the file. Note: HEC-DSS is a

multi-user database system. Some older MS-DOS programs exclusively locked HEC-DSS files to fully utilize disk caching.

3.2.4 Printing the Catalog

You can Print the catalog or show what the catalog will look like when it is printed, from the **Print Catalog Preview...** command or from the **Print Catalog** command from the **File** menu. Each command opens the **Print Properties** dialog box (Figure 3.10), which offers options on three tabs.

The **Page** tab allows you to specify the page Orientation, Scaling, and Selection; you can also choose to print the table as ASCII, Repeat Headers on every page, and print the Gridlines.

On the **Header/Footer** tab, you can type in the header and footer you want to appear on your printed pages.

The **Table Title** tab offers a default title for the table based on the data source. You may edit this title.

On the **Print Properties** dialog box, the **Print** button performs two functions, depending on whether you arrived at the dialog box via the **Print** command or the **Print Preview** command.

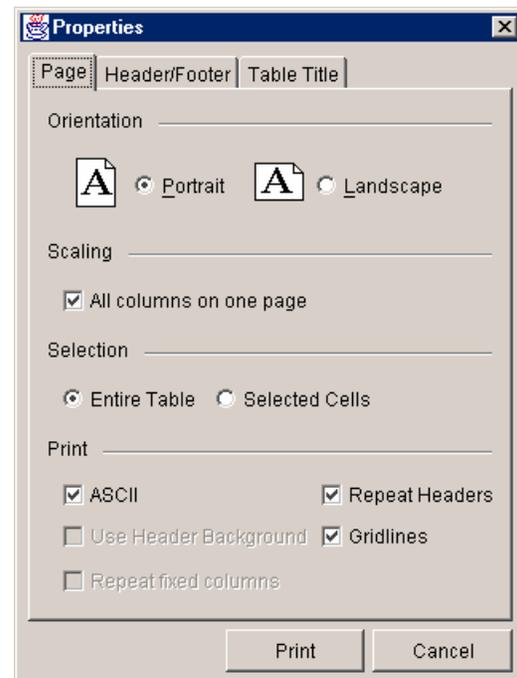


Figure 3.10 Print Properties Dialog Box

3.2.5 Exiting HEC-DSSVue

To exit HEC-DSSVue, from the **File** menu, click **Exit**. (If you have opened HEC-DSSVue from another application, such as CWMS or ResSim, select **Close** from HEC-DSSVue's **File** menu.)

3.3 Edit Menu Operations

Edit menu commands are **Tabular Edit**, **Graphical Edit**, and **Select All**.

3.3.1 Tabular Editing of HEC-DSS Data

To edit data in a tabular format, from the **Edit** menu, click **Tabular Edit**. This will display the data in a table format with editing turned on and is the same as selecting **Allow Editing** from a tables **Edit** menu.

Chapter 4 on **Utilities** discusses tabular editing in detail.

3.3.2 Graphical Editing of HEC-DSS Data

To edit data in a graphical format, from the **Edit** menu, click **Graphical Edit**. This will display the data in a combined plot/table format.

Chapter 4 on **Utilities** discusses graphical editing in detail.

3.3.3 Selecting All Pathnames in a HEC-DSS File

From the **View** menu, you can select all pathnames in a HEC-DSS file for visualization by clicking **Select All**. Refer to Section 3.5 for more information about selecting pathnames for visualization.

3.4 View Menu Operations

The **View** menu allows you to customize the display of HEC-DSS pathnames and search pathnames. The following sections describe these options.

3.4.1 Choosing a Display Mode for HEC-DSS Pathnames

To specify the display mode for HEC-DSS Pathnames, from the **View** menu, choose **Pathname List**, **Pathname Parts**, **Condensed Catalog**, or **No Pathnames**. Figure 3.11 shows a *Pathname List* of HEC-DSS files displayed.

Number	Pathname
54	//RENOVO/PRECIP--INST/01DEC1993/MR-MONTH/DCP-REV/
55	//SAYERS/ELEV--INST/01OCT1993/MR-MONTH/DCP-RAW/
56	//SAYERS/ELEV--INST/01NOV1993/MR-MONTH/DCP-RAW/
57	//SAYERS/ELEV--INST/01DEC1993/MR-MONTH/DCP-RAW/
58	//SAYERS/ELEV--INST/01NOV1993/MR-MONTH/DCP-REV/
59	//SAYERS/ELEV--INST/01DEC1993/MR-MONTH/DCP-REV/
60	//SAYERS/FLOW-SPILL--INST/01NOV1993/MR-MONTH/COMPUTED/
61	//SAYERS/FLOW-SPILL--INST/01DEC1993/MR-MONTH/COMPUTED/
62	//SAYERS/FLOW-UNREG--INST/01NOV1993/MR-MONTH/ALT INFLOW/
63	//SAYERS/FLOW-UNREG--INST/01DEC1993/MR-MONTH/ALT INFLOW/

Figure 3.11 HEC-DSSVue – Data Selection List window, pathname list displayed

You can also view the pathnames the *Pathname Parts List* (Figure 3.12).

Number	A part	B part	C part	D part	E part	F part
1		AXEMA	FLOW	01OCT2001	1HOUR	OBS
2		AXEMA	PRECIP	01OCT2001	1HOUR	OBS
3		AXEMA	STAGE	01OCT2001	1HOUR	OBS
4		BALD EAGLE TOTAL	FLOW	01OCT2001	1HOUR	NOC0T0
5		BALD EAGLE TOTAL	FLOW	01OCT2001	1HOUR	SOC0T0
6		BALD EAGLE TOTAL	FLOW-CUMLOC	01OCT2001	1HOUR	NOC0T0
7		BALD EAGLE TOTAL	FLOW-CUMLOC	01OCT2001	1HOUR	SOC0T0
8		BALD EAGLE TOTAL	FLOW-HOLDO...	01OCT2001	1HOUR	NOC0T0
9		BALD EAGLE TOTAL	FLOW-HOLDO...	01OCT2001	1HOUR	SOC0T0
10		BALD EAGLE TOTAL	FLOW-UNREG	01OCT2001	1HOUR	NOC0T0

Figure 3.12 HEC-DSSVue – Data Selection List window, pathname parts displayed

The *Condensed Catalog* style (Figure 3.13) abridges time series data sets so that the date span for the entire data set displays in place of the “D” part.

Number	A part	B part	C part	D part / range	E part	F part
119	MONONGAHELA	WLTP	FLOW	01JAN1992 - 01MAY1998	1HOUR	OBS
120	MONONGAHELA	WTMW	FLOW	01JAN1992 - 01MAY1998	1HOUR	OBS
121	MONONGAHELA	YGOP	FLOW	01JAN1992 - 01MAY1998	1HOUR	OBS
122	OHIO	BLAO	FLOW	01JAN1992 - 01MAY1998	1HOUR	OBS
123	OHIO	CARP	FLOW	01JAN1992 - 01MAY1998	1HOUR	OBS
124	OHIO	DLLO	FLOW	01JAN1992 - 01MAY1998	1HOUR	OBS
125	OHIO	DSHP	FLOW	01JAN1992 - 01MAY1998	1HOUR	OBS
126	OHIO	ELPO	FLOW	01JAN1992 - 01MAY1998	1HOUR	OBS
127	OHIO	EMSP	FLOW	01JAN1992 - 01MAY1998	1HOUR	OBS
128	OHIO	HANC	FLOW	01JAN1992 - 01MAY1998	1HOUR	OBS

Figure 3.13 HEC-DSSVue – Data Selection List window, condensed catalog displayed

3.4.2 Refreshing the Catalog

The catalog automatically refreshes whenever you add, delete or rename records. For very large files, or network files, a dialog box will be shown asking if you want a new catalog. When the catalog is refreshed, it re-inventories all records on disk to get a pathname for every record. To generate a new catalog manually, from the **Edit** menu, click **Refresh Catalog**.

3.4.3 Searching and Filtering HEC-DSS Pathnames

With HEC-DSSVue, you can select specific data sets from a list of pathnames (or *catalog*) in the database. You can refine the list by searching for either a string in the pathnames or for pathname parts.

The following sections describe searching and filtering options.

3.4.4 Searching Pathname Strings

The **Search Pathnames by String** feature allows you to search for records whose pathnames contain specific strings of characters. For example, if you search for “FLOW” the list will display only pathnames containing the string “FLOW” in the pathname.

To **Search Pathnames by String**:

1. From the **View** menu, choose **Search Pathnames by string**.
2. In the **Search Pathname** box (Figure 3.4), type the character string you want to filter the pathnames.
3. Click the **Search** button.

3.4.5 Filtering HEC-DSS Pathnames by Parts

The **Search by Parts** feature lets you choose specific pathname parts from those available in a HEC-DSS file.

To Search by Parts:

- From the **View** menu, click **Search pathnames by parts**.
- Click on the down arrows beside the pathname parts you want to search. This allows you to view lists of available names in the file (Figure 3.14).
- When you have a pathname part list open, you can scroll through the list to locate the pathname part you want.
- Click on a pathname part to select it.
- To return to the previous list, click on the blank field at the top of the list.

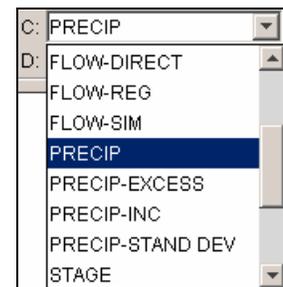


Figure 3.14 Selecting Pathname Parts

3.5 Selecting Pathnames

Once you have filtered a HEC-DSS file for the pathnames you want, you select specific pathnames to visualize data for or perform a utility function on. When you select a Pathname, it will appear in the **Selected Pathnames List** (Figure 3.7).

There are several ways to select pathnames:

- Double-click on an individual pathname in the HEC-DSS Pathname List.
- Highlight a pathname in the HEC-DSS Pathname List then click the **Select** button (Figure 3.1). Until you select a pathname, the **Select** button remains inactive.
- Click and drag your mouse to select a series of pathnames, and then click the **Select** button. You can also use **Ctrl+click** to select multiple, non-consecutive pathnames.
- Hold down the control key and click on pathnames to highlight them, or hold down on the shift key to highlight all pathnames between mouse clicks, and then click the **Select** button.
- If you wish to select all of the pathnames, from the **Edit** menu, choose **Select All**.
- If no pathnames are selected, you can just highlight one or more pathnames and then perform the function that you intended. If pathnames have already been added to the selection box, those pathnames will be used instead of the highlighted ones.

3.5.1 De-Selecting Pathnames

To de-select a pathname currently in the Selected Pathnames List:

1. Click the record's pathname in the Selected Pathnames List to select it.
2. Click the **De-Select** button. The pathname will no longer appear in the Selected Pathnames List.

To remove all pathnames from the Selected Pathnames List, click the **Clear Selections** button. To restore selections you have cleared, use the **Restore Selections** button.

3.5.2 Setting the Time Window

You can also specify the time window for data you want displayed in plots and tables. For example, if you have a set of HEC-DSS records ranging from October 1, 1993, to December 30, 1993, you can specify a narrower time window, such as 05OCT1993 to 25OCT1993 for plots and tables you view, and for operations with math functions.

To set the Time Window:

1. Click the **Set Time Window** button. The **Set Time Window** dialog box will open (Figure 3.15).



Figure 3.15 Set Time Window Dialog Box

2. You may either enter specific dates and times or use the current time.
 - To use the current time, click the **Set Current Time** button. This will set both the start and end dates and times to the current time.
 - To specify dates and times:
 - a. Enter the **Start Date** and **End Date**. Although a variety of formats will be recognized for the date, the typical format is DDMMMYYYY.
 - b. Enter the **Start Time** and **End Time** in 24-hour format (e.g., for 2:00 PM, type “1400”).
 - You may select the starting and ending dates from the calendar tool, accessible from a button on the right side of the date field. When you click on this button, the selection calendar in a monthly format is opened (Figure 3.16 Calendar Selection Tool). You may scroll through months or years by using the appropriate arrow key at the top of the box.
3. The **Apply to All Data** checkbox is set by default. The time window will be applied to all pathnames that have been selected. To have the time window apply only to pathnames selected after this, uncheck this box.

4. Click the **Apply** button to apply the time window without closing the dialog box.
5. Click **OK** to apply the time window and close the dialog box.



Figure 3.16 Calendar Selection Tool

3.6 Visualizing HEC-DSS Data with Plots and Tables

Once the **Selected Pathnames List** contains all the pathnames you wish to display, you can generate plots and tables.

To create a plot or table from the **Display** menu, select **Plot** or **Tabulate**. You can also click on the **Plot**  button or the **Tabulate**  button.

From a plot window, you can also tabulate data using the **Tabulate** command in the plot's **File** menu. Likewise, to open a plot from a table, you can use the **Plot** command in the table's **File** menu.

Figure 3.17 shows examples of the plots and tables HEC-DSSVue can produce.

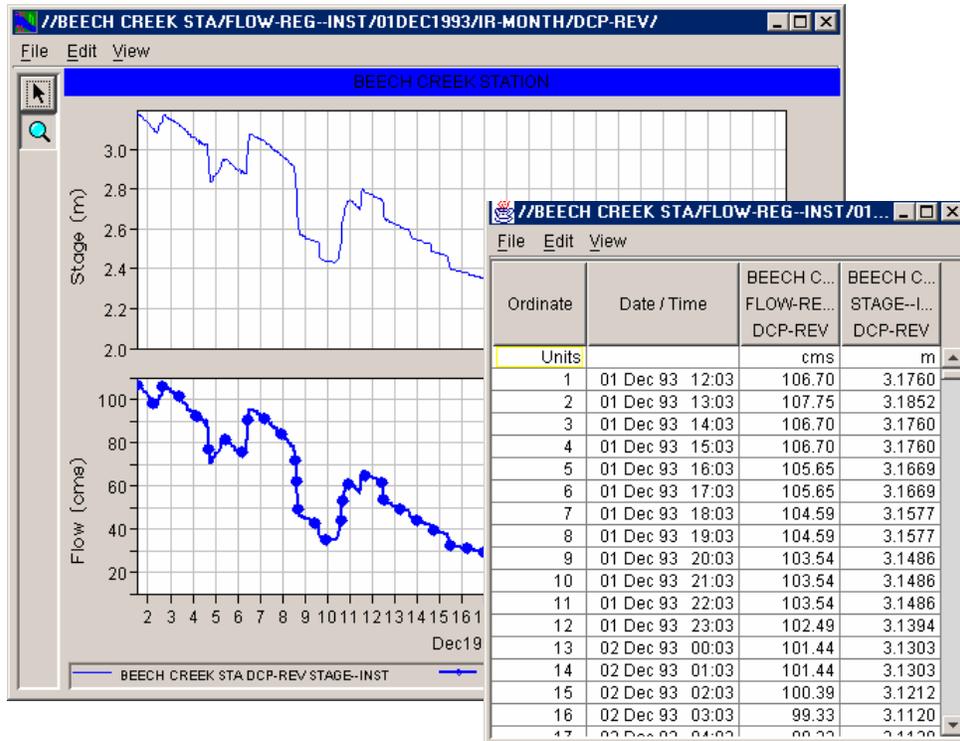


Figure 3.17 Example Plot and Table

HEC-DSSVue plots are highly customizable. You can add titles, specify colors and patterns of backgrounds and lines, change line styles, add markers and callouts, add borders to labels, and customize legends, axes, and tic marks.

For more information on plots, refer to the chapter on **Plots**.

For more information about tables, see the chapter on **Utilities**.

3.6.1 Plot Data Options

Two options are provided as a quick way to compare time series data sets for different time periods or for different amounts. The options are turned on or off by selecting them from the submenu and then clicking them.

The **Normalize** option will subtract the differences between the values of first and the second or subsequent data sets from the corresponding data set, so that the curves all start at the same value (which is the value of the first data in the first data set). This is often used to compare cumulative precipitation curves, which usually start at different values.

The **Synch data set times to first** option will subtract the differences between the times of first and the second or subsequent data sets from the corresponding data set, so that the curves all start at the same time (which is the time in the first data set). This is often used to directly compare hydrographs for different years or time periods.

Each option will remain on until you turn it off or the program exits. The options can be used in combination with each other. For example, if you want to compare cumulative precipitation curves for different years, set each option to on. Figure 3.18 shows such an example of normalized cumulative precipitation for years 1986 and 1995, synched to the same start time.

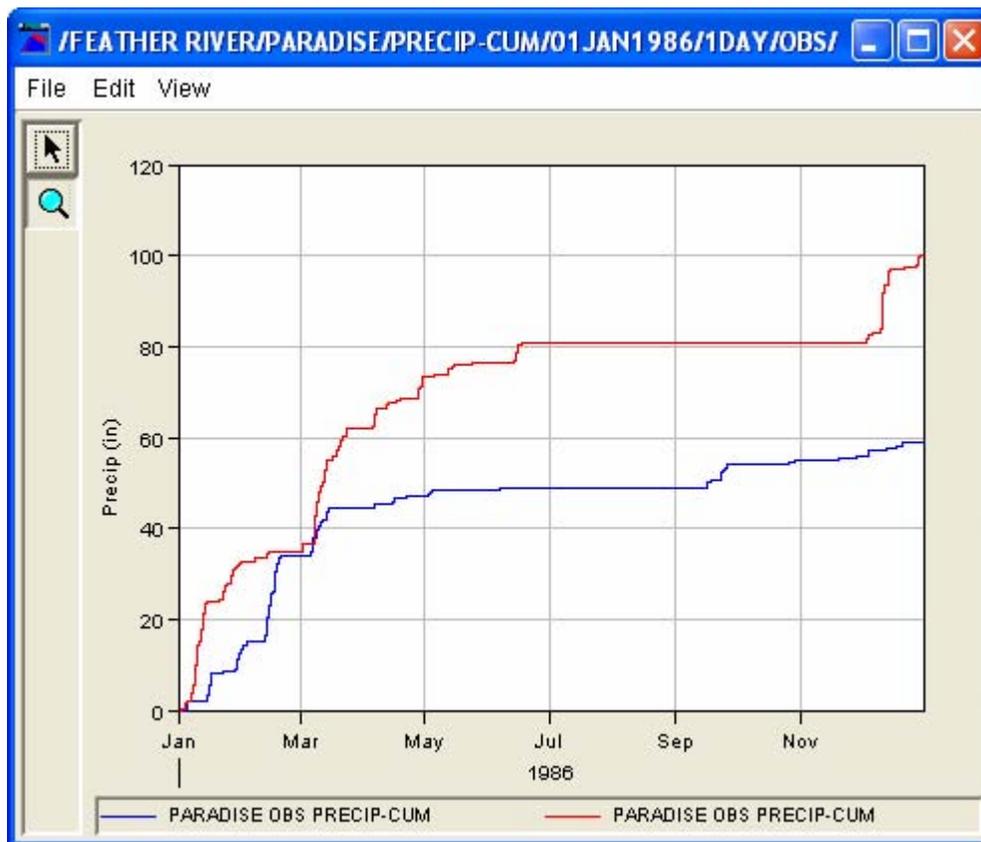


Figure 3.18 Normalized and Time Synched Precipitation Data for Years 1986 and 1995

3.7 Utilities Menu Operations

The **Utilities** menu provides access to **Math Functions**, **Manual Data Entry** (Time Series and Paired Data), and it allows you to **Rename Records**, **Duplicate Records**, **Copy Records**, **Delete Records**, **Undelete Records**, **Merge Files**, **Squeeze**, access the **Script Browser** and the **Script Selector**, and view the HEC-DSS **Status** of files opened.

These functions are discussed in detail in three separate chapters: **Math Functions**, **Utilities** (which also covers tabular editing and printing functions), and **Scripting**.

3.8 Plug-ins

HEC-DSSVue has the capability of accepting Java jar plug-ins. A plug-in is essentially compiled Java code that has been written to extend the capability of HEC-DSSVue. It is similar to a script, but can be more powerful and more customizable. For example, a plug-in might retrieve data, decode it and store it into a HEC-DSS file. Another use might be to perform sophisticated math functions on data selected from the main screen.

Plug-ins are added by placing the jar plug-in file in the HecDssVue/Plugins directory. When HEC-DSSVue is executed, it searches this directory for available plug-ins and loads them into the program. Most plug-ins will add a button to the main toolbar, adjacent to any script buttons. To remove a plug-in, simply remove its jar file from the Plugins directory.

Visit the HEC-DSSVue area of the HEC web site to obtain publicly accessible plug-ins, or contact HEC for more information.

