Part 2 – Reference Manual

INCLUDES CHAPTERS:

DIPS DATA FILE

USING THE ADVANCED VERSION OF DIPS

DIPS UTILITIES

DIPS Data File

Introduction

The DIPS data file is a listing of all of the information about a set of input data in a standard order. The input file can be customised easily to the specific details of a project using a series of optional flags. The data file can be generated using any computer program from which ASCII text files can be written.

Also, a DIPS file editor – DEDIT – is now supplied with your DIPS package. DEDIT is a text editor specifically designed for the creation of DIPS data files.

The data file format is best demonstrated with an example, such as the input file listed in Table 2.1. In this case, the description of each item is brief. Detailed descriptions of each input item are provided later in this chapter. Also, see the example data input files and templates contained in the \EXAMPLES subdirectory, for additional comments and guidance.

DIPS Data File Editor – DEDIT

As of DIPS 4.0 a DIPS file editor – DEDIT – is supplied with the DIPS package. DEDIT is a text editor which has been specifically designed for the creation and editing of DIPS data files. DEDIT automatically takes care of many of the formatting details of the DIPS data file.

You will find DEDIT in your main DIPS directory, in the file dedit.exe. To run DEDIT, type *dedit* at the DOS prompt. DEDIT is set up in a familiar text editor format, and its use should be self-explanatory. However, online HELP info which includes most of the contents of this chapter, is available while running DEDIT.

DEDIT creates *.dip ASCII text files for use in DIPS.

Table 2.1: An example of a DIPS data input file. Comment lines are indicated with the symbol, *. Text that you **must** input for each problem is shown in **BOLD** type. Text included in data input lines which is *not* read by DIPS is presented in *italics*.

```
* Filename: example.dip
* Project titles:
PROJECT IDENTIFICATION
DATA COLLECTOR, DATE
* Traverse identifiers:
* To turn off the traverse option, enter 0,
* or where traverse data have been identified,
* enter a positive integer.
1 traverse(s)
* Traverse information:
1;LINEAR;120;30;Level 3,Stope 3A, sublevel 310
* Global data orientation type flag:
STRIKE/DIPR
* Magnetic declination is given next:
-5.5 degrees (east)
* The next line is a flag for a 'quantity column'.
* This lets you specify multiple data units with the
* same measurements. This flag must be either QUANTITY
* or NO QUANTITY (note single space). If the flag is QUANTITY,
* then the 'quantity' column must be present, as the fourth
* data column, after the first three mandatory columns.
* If the flag is NO QUANTITY then do not include a 'quantity'
* column.
QUANTITY
* In the next line, the number of extra data columns are
* indicated. If there are no extra data columns, enter 0.
* If there are extra data columns, enter the number next.
* You may include up to 35 extra data columns.
3 extra data columns
* The next line is the header for the data
* columns which follow:
number  ; strike ; dip(rt);quantit;travers;spacing;type   ;surface;
       1       53       86       1       1       2   joint   smooth
       2       57       83       1       1       1   joint   smooth
       3       51       84       1       1     1.5   joint   smooth
       4       50       82       1       1       2   joint sl.rough
       5       48       83       1       1       3   joint    rough
       6      231       86       2       1     0.5   joint    rough
       7       47       82       2       1       1   shear slickens
       8      244       87       1       1     0.3   joint  v.rough
       9       83       84       1       1    0.75   joint    rough
      10       64       86       1       1     1.5   joint   smooth
* The data must be completed with an END OF FILE
* marker of -1
-1
```

DIPS data file generation using commercially available programs

DIPS files can also be created using various commercially available programs, as described in the following sections.

DIPS is designed to accept data from an ASCII text file, which can be created using any spreadsheet or word processing program, or any standard text editor. *Do not try to use the standard binary storage file used to save documents by word processing or spreadsheet packages.* Several examples of the production of DIPS files from commercially available packages are given in the following sections.

Spreadsheet Programs

If you are using a spreadsheet package and are printing to a text file, make sure that you have set the print or save range and the left and right margins so that they include the entire width of the data file. If you do not do this, lines or pages of text may be split and DIPS will not be able to read them.

DIPS files from Lotus 123

In LOTUS 123, an ASCII file is created by following these steps:

1. Save the .wk1 file: */ FILE SAVE*. (This is your working file for editing later.)

2. Print the data to a file: */ PRINT FILE*. Give the file a name with a .dip extension.

3. Set the PRINT RANGE to include all of the file.

4. Set the left margin (OPTIONS) to 0, and the right margin to extend past the last data column. (This is very important.)

5. Then select *GO* to create the file.

Note: 123 will insert page breaks in the file, which do not affect DIPS.

DIPS files from Quattro Pro

The Lotus example.wk1 and template.wk1 files included with the DIPS package (in the \EXAMPLES subdirectory) can be used directly in Quattro Pro, by retrieving the Lotus file: */ File Retrieve*. Once you have added your data to the file, use the following procedure to create a DIPS data file:

1. Save the .wq1 file: */ File Save.* (This is your working file for editing later.)

2. Establish the area of the spreadsheet to be printed to the file: */ Print Block*

3. Define a file to be the print destination: */ Print Destination File*. Give the file a name with a .dip suffix.

4. Send the print to the file: */ Print Spreadsheet Print*.

Note: If you prefer to work in the "WYSIWYG" screen format in Quattro Pro, always check your file in the "CHR" format before saving the file. In the "WYSIWYG" screen format, the characters are proportionally spaced, and it is impossible to determine if the width of the data header column titles has been set correctly.

DIPS files from Microsoft Excel

To produce a DIPS file from Microsoft EXCEL:

1. In the Windows Control Panel, set the printer type to "Generic / Text Only" on the FILE port.

2. In Excel, open the desired file, template.xls, example.xls or any other spreadsheet based version of a DIPS file eg.: *File Open* example.wk1.

3. Once you have completed work on the data file, save it as an Excel spreadsheet.

4. Set the print margins to 0: *File Page Setup Left=0, Right=0, Top=0, Bottom=0.*

5. In the Page Setup window, select the Printer Setup button (at the lower right corner) and ensure that the printer is set to Generic / Text Only. Check the Setup from within this window, and make sure that the "Wide Carriage" and "No Page Break" options are selected.

6. Next select the Print button in the Page Setup window, and print the entire range, "all", to a file with a *.dip extension.

Note that up to 9 columns can be printed to a file, when the column width is 9 (default). If you wish to include more columns in your file, reduce the size of the column widths in Excel.

DIPS files from Word Processing Packages

If you are using a word processing package, be sure that nested comments do not exceed 240 characters. If there are more than 240 characters in a line, start a new line with an asterisk. Some programs do not automatically insert line feeds and end of line markers in ASCII files in place of the automatic margin returns found in the document file. To be on the safe side, always use a hard return (*Enter*) to start a new line in your file when using a word processor to create an ASCII file.

Always use a hard return (Enter) to start a new line in your file when using a word processor to create an ASCII file.

When using a spreadsheet or a word processing package, use a font which **does not** use proportional spacing. The Courier font is recommended. If you use a font with proportional spacing, the text document will not have the same layout and spacing as your working file on the screen. As a result, you may find that the data column layout will be disrupted and DIPS may not accept the file.

In WORD PERFECT, use the TEXT IN/OUT (Ctrl F5) feature to import, change and then save a .dip file. Ensure that you retrieve the file as DOS text with Hard Returns (HRT).

In WORD, a DIPS file can be created by:

1. Open a DIPS ASCII file such as example.dip or template.dip: *File Open filename.dip*.

2. WORD's file conversion utility will ask you for the type of file that is being opened. Specify the type to be "Text (OS/2 or MS-DOS)".

3. Change the font of the file to Courier, to ensure non-proportional spacing.

4. Make the changes desired, and save the file.

5. Next save the file as DOS text: *File Save As Type: DOS text Filename .dip*.

General Format Guidelines

Before examining specific features of the DIPS data file, some general format guidelines should be noted:

- All DIPS data filenames must have a *.dip extension.

- Blank Lines are ignored by DIPS. This means that all required information must be present. For example, a blank line may not be substituted for a project title.

- Comments can appear anywhere in the data file as long as an asterisk (*) is the *first character* in the line. Comments may be included in the same line as other data in special circumstances. These will be discussed individually.

- The maximum line length is 240 characters for data and comments.

- The characters **: ;** and **|** are reserved for use as data separators. Do not use these in data or traverse labels. However, they may be used in comment lines.

- Make sure that the program used to create the data file inserts *spaces only* to align the data. TABS are not recognized in DIPS and will lead to problems. This is a particular problem when using word processors. Do not use TABS to space data.

DIPS Data File

Essential Info
▼

The DIPS data input file must follow a standard configuration, a basic version of which is given in Table 2.1. Examples of more fully commented DIPS data input files (eg. example.dip) can be found in your \EXAMPLES subdirectory. All of the data lines used in the input file are discussed in detail in the following sections.

The data file can be divided into two parts. The first section contains information pertaining to the layout of the data and some instructions for processing the data. The second section is the data itself.

Project Titles

Two (non-blank) ***Project Title*** *lines*

The first two lines of the data input file are titles which are used by the **SCREEN DUMP** option in DIPS. These must be present and cannot be blank lines or lines containing only spaces. At least a single character in each of these two lines must be present. Only 55 characters (after the first non-space character) will be read in each line.

Example title lines:

```
PROJECT IDENTIFICATION
DATA COLLECTOR     DATE
```

Number of Traverses

Number of Traverses *(an integer greater than or equal to zero)*

The next line must contain an integer value greater than or equal to 0. This is the number of traverse identifiers to be used in the file. The integer value may be nested in a line of text as long as it is the first numerical character in the line.

A traverse is used to group data units, and is also used by DIPS to weight the data to correct for measurement bias. This weighting is used by the **WEIGHTED PLOT** option in the **CONTOUR PLOT** menu, and in the calculation of weighted mean vectors in the **SET WINDOWS** option. Traverse types will be discussed in the next section.

Example Number of Traverses lines (use only one line):

```
4
```

or...

```
4 [Traverses]
```
(note that only the numeric character is read)

or...

```
 [There are] 4 [traverse lines in this data
file]
```

The parentheses [ ] indicate optional user comments which need not be present.

Traverse Information Lines

*If Number of Traverses>0, then the following lines must contain Traverse information (**one line for each Traverse**)*

The next series of lines contains traverse identification and information for each traverse, if the number of traverses indicated in the previous line was >0. *There must be one line per traverse and as many lines as indicated by the Number of Traverses value.*

The standard form of a traverse information line (one line per traverse) is:

ID#; TRAV. ORIENT. FLAG ; TYPE; ORIENT. 1; ORIENT. 2; ORIENT. 3; TRAV. ID LABEL;

Note that the Traverse Orientation Flag is optional, and the Orientation 3 information is only required for establishing the orientation of a borehole for core logging data. The markers used to separate the components of the line may be **;** as shown above, or **:** or |.

A series of Traverse Identification lines is given in the file, example.dip, and is reproduced here as an example of a variety of different possible structures of input data:

```
1;LINEAR;120;30;Level 3, Stope 3.A, sublevel 310;
2;PLANAR;100;10;Level 5, Stope 5.D, roof before
          shrinkage;
3;BOREHOLE;20;145;120;Borehole;
4;DIP/DIPDIRECTION;PLANAR;10;190;Level 5, Stope 5.D, roof;
```

Traverse ID#

The **ID#** must be an integer (greater than 0) and is used to associate data with each traverse.

Traverse Orientation Flag (optional)

The **Traverse Orientation Flag** is optional, and is used if the data from a given traverse is of a different orientation type from the rest of the data. (The general format of the orientation type for the rest of the data in the file is specified by the Global Orientation Flag, discussed in a following section). This option may be useful when combining data from different sources or when combining measurements of LINEAR features with measurements of PLANAR structures. The flag may be one of four types (upper or lower case is acceptable):

DIP/DIPDIRECTION	
STRIKE/DIPR	(right hand rule)
STRIKE/DIPL	(left hand rule)
TREND/PLUNGE	(use this for linear measurements)

NOTE: the Traverse Orientation Flag is NOT relevant if the Traverse Type is BOREHOLE (see below) – it is only relevant for LINEAR or PLANAR traverse types.

If this flag is not used, **do not** use an extra semicolon between the **ID#** and the **TYPE** label. Simply ignore this flag and separate the **ID#** and the **TYPE** with a single semicolon.

Traverse Type

This is a label which identifies the type of traverse used to obtain the measurements. There are three options :

LINEAR	Scanline or tunnel wall mapping
PLANAR	2-D surface/wall mapping
BOREHOLE	Oriented core

Traverse Orientation

Linear

For a **Linear** traverse, the two orientation values defining the traverse correspond to the Trend and Plunge of the linear traverse, so will be of the format:

000;00;	(TREND/PLUNGE of the linear traverse)

Note that this is the case even if the optional Traverse Orientation Flag or the Global Orientation Flag has been used to specify a different format for the orientation pairs that will be input later into the data file.

Planar

The Plane in a **Planar** traverse is described by two orientation values, presented in the form which corresponds to the Traverse Orientation Flag, if this has been used, or to the Global Orientation Flag. The appropriate forms are:

00;000;	(DIP/DIPDIRECTION)
000;00;	(STRIKE/DIPR or STRIKE/DIPL)
000;00;	(TREND/PLUNGE of normal to the plane)

Note that these orientations must be integers, and must not exceed 3 characters in width between the semicolons (including spaces).

Borehole

****
BOREHOLE TRAVERSE
******* *NOTE!!!* *******
*See also **Figure 2.2** and the accompanying text, for essential information concerning the orientation data pairs **alpha** and **beta** for discontinuities logged on a borehole traverse.*
****

If the mapping has been conducted on core recovered from a **Borehole**, three traverse orientations must be given. These orientations are of the format:

000;000;000; (ORIENT1/ORIENT2/ORIENT3)

These orientations are described in the following table, and are shown in Figure 2.1. **NOTE!!!** – also see Figure 2.2 and the accompanying text (later in this chapter), for ***essential information*** concerning the orientation data pairs ***alpha*** and ***beta*** for discontinuities logged on a borehole traverse.

ORIENT1	The angle from the top of core to the reference line (measured clockwise looking in the down core direction). Use 0 if the borehole is vertical.
ORIENT2	The inclination of the borehole axis from the zenith. Use 0 for a borehole oriented vertically upwards, and 180 if the borehole is oriented vertically downwards.
ORIENT3	The azimuth of the borehole measured from true north. For a vertical borehole, use the clockwise angle from true north to the reference line, looking along the direction of borehole advance.

Traverse ID Label

This is a string of characters which is used to describe the traverse. DIPS will read and echo up to 55 characters.

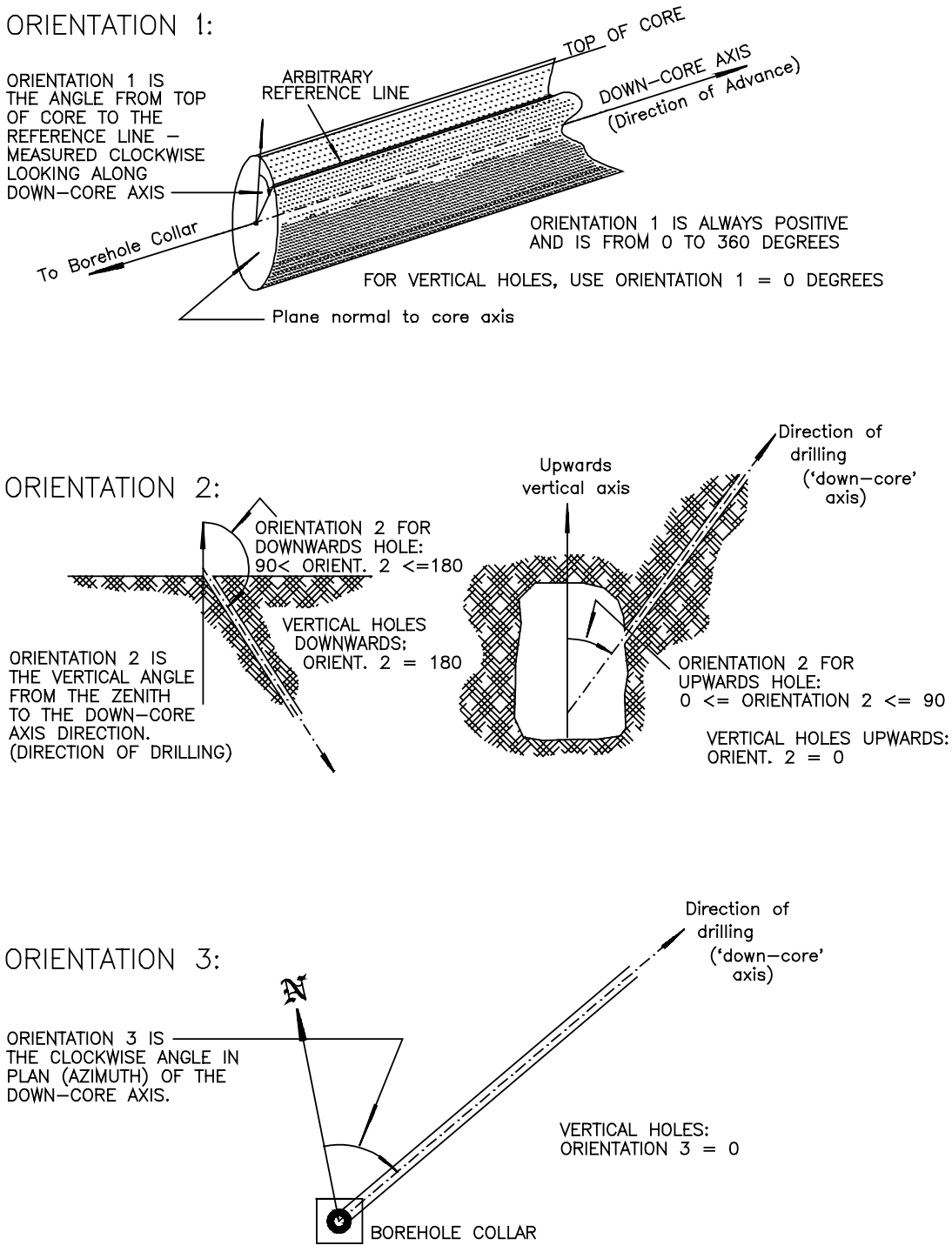


Figure 2.1: Definition of the orientation data required to set up a borehole logging traverse.

Global Orientation Flag

*A **Global Orientation Flag** must be specified*

The next line in the data input file contains a flag which indicates how DIPS will interpret the two orientation columns in the data file. All data units will be interpreted as dictated by this flag, unless they are assigned to a traverse which is a **Borehole**, or unless they are assigned to a traverse for which the optional **Traverse Orientation Flag** has been specified. Data in these two traverse types will be treated as defined by their respective traverse information lines.

There are four possible global orientation flags, of which one must be specified:

DIP/DIPDIRECTION	00;000	(of a planar feature)
STRIKE/DIPR	000;00	(right hand rule)
STRIKE/DIPL	000;00	(left hand rule)
TREND/PLUNGE	000;00	(use this for linear measurements)

Note the order of the two orientation components in the flag. The two orientation columns in the data file must be consistent with this order.

An example of the global orientation flag is:

```
STRIKE/DIPR [is the orientation type in this
file]
```

For STRIKE and DIP, the "handedness", right hand rule or left hand rule, can be interpreted as follows: hold the specified hand flat, with the palm down and the thumb extended at 90° to your fingers. When your fingers point down dip, your thumb will indicate the direction of strike.

Declination Line

*The **Declination Line** must contain a value for azimuth correction.*

The Declination Line must contain a value for azimuth correction. This is typically used to correct for magnetic declination, but can be used to adjust to grid north.

If you have already adjusted your measurements with your compass, use a 0 in this line, since additional correction is not required. The value in this line is ADDED to all azimuth values, so use a *positive value to correct for west declination and a negative value for east*.

Comments may follow this value in the same line, for example:

```
-5.5 [declination (5.5 degrees east)]
```

Quantity Flag

*A **Quantity Flag** must be specified.*

If you are measuring a large number of features, you may wish to record a single data unit which refers to several features having the same orientation. The Quantity flag turns "on" or "off" a data column which contains the number of identical features represented by a particular measurement.

The two flags which can be used (use only one) are:

```
QUANTITY
NO QUANTITY
```

QUANTITY turns on the quantity column in the data input section. If this flag is used, then a column containing quantity information must be present, as the *fourth* column in the data file. If **NO QUANTITY** is selected, do not include a quantity column in the data section.

Number of Extra Data Columns

There are three mandatory data columns in the DIPS file:

Data ID number;Orientation 1;Orientation 2;

and two optional columns:

Quantity;Traverse;

*The **Number of Extra Data Columns** must be specified. If none are used, enter 0.*

After these columns, you may include up to 35 extra columns containing any information you wish to analyse. These are referred to as Extra Data Columns. *This line sets the number of extra columns that will be expected by DIPS.* Use 0 if there are no such columns. Again, only the first numeric value in this line will be read by DIPS, so comments may be included.

Example extra data column number line:

```
[There are] 3 [extra data columns]
```

Column Header Line and Data Columns

*A **Column Header Line** (minimum 3 titles) must precede the actual data columns.*

The next line contains the titles of the data columns and is used by DIPS to determine the column width for the rest of the data. The column width is flexible, and can range from 1 to 18 characters for each column. The column width is set by the space between the divider characters (**; :** or |) in the header line. The column width includes the first character (including spaces) after the leading divider, and spans up to and including the trailing divider. For example, the column denoted by:

```
- - - ;123456789; - - -
```

is 10 characters wide and the column begins under the 1. The **first** column begins at the beginning of the line and must **not** start with a divider character.

An example of a possible Data Header Line is:

```
number  ;strike  ;dip(rt) ;quantity;traverse;spacing ;type    ;surface ;
```

in which all of the columns are 9 characters wide. The Courier font is used in this example, since it has non-proportional spacing.

The first three headers and columns are mandatory, and will always contain the following information:

```
DataID# ;Orient 1;Orient 2;
```

The remaining columns are optional, and are dependent upon the flags set in the first part of the data file.

The data input into the columns beneath the header must fall within the column widths defined by the header. *Do not separate the data* with divider characters (**;** or |). Remember that a column begins under the first character space after the leading divider character, and terminates under the trailing divider. Comment lines may be included within the data section if the line is preceded by an asterisk * and does not exceed 240 characters in length. The total width of the data file must also not exceed 240 characters.

Data ID Number

The first column of the DIPS data input file must contain sequential numbering from 1 to the number of data units in the file. An example of the format of the header line and first column is:

```
number
     ;
     1
     2
```

Orientation 1 and Orientation 2

The format of the orientation data input into these two (second and third) columns depends upon the type of Orientation Flag that has been specified, and where applicable, may depend upon the Type of Traverse.

In general, the format of the orientation pairs is specified by the **Global Orientation Flag**. However, if a traverse which includes the optional **Traverse Orientation Flag** has been specified, then the data pairs for the traverse must follow this different convention.

An example of a data header and column format for orientation data is shown in the shaded section of the following:

```
number ;    strike ;    dip(rt);
       1          53          86
       2          57          83
```

Negative Orientation Values

Where negative values for orientation or where orientation values which exceed 90 or 360 degrees (for dip and dip direction, for example) are present, an attempt will be made to convert to a corresponding orientation in the lower hemisphere. For example, if dip/dip direction is input as -35 400, DIPS will convert this measurement to 35 220. To ensure correct plotting, it is best to record all measurements so that they fall in the lower hemisphere and are within standard limits.

Borehole Orientation Data Pairs

If the orientation data was measured from the logging of core from a **Borehole**, then the Traverse Type will have been defined as Borehole. The data pair columns must then contain the measurements of the "Alpha" angle and the "Beta" angle. The definition of these orientations are given below, and illustrated in Figure 2.2.

Alpha (Part 1 of the Orientation pair)	The minimum angle between the maximum dip vector of the plane of the discontinuity, and the core axis.
Beta (Part 2 of the Orientation pair)	The clockwise angle from the reference line to the direction of the maximum dip vector, looking along the direction of borehole advance.

****
BOREHOLE TRAVERSE
******* *NOTE!!!* *******
*See also **Figure 2.1** and the accompanying text, for essential information concerning the orientation data required (**orientations 1, 2 and 3**) to set up a borehole logging traverse.*
****

If your data set was entirely recorded from borehole core logging, you will have to specify a traverse for each borehole, and set up the data file accordingly. **NOTE!!!** – also see Figure 2.1 and the accompanying text (earlier in this chapter), for ***essential information*** concerning the orientation data required (***orientations 1, 2 and 3***) to set up a borehole logging traverse.

Quantity Column (optional)

A Quantity Column must be present, as the *fourth* data column in the file, if the **QUANTITY** flag has been turned on. If this is the case, this column contains values corresponding to the number of measurements represented by a single data entry. This column must be removed from the data file, if **NO QUANTITY** is specified.

The values in the Quantity Column are generally 1 or greater, but can be set to zero if you wish to plot a feature, but not use it in the computation of the **SCATTER PLOT** or **CONTOUR PLOT**.

Traverse Number Column (optional)

The next column, if present, is used to assign the data units to the traverse from which they were measured. It *must* be present if the **Number of Traverses** (described earlier) is greater than zero and *cannot* be present if there are *no* traverses specified. The numbers contained in this column must correspond to the appropriate TRAVERSE ID numbers listed in the traverse information lines.

The Traverse Number Column will be either the *fourth* or the *fifth* data column, depending on whether or not a Quantity Column exists.

Extra Data Columns (optional)

Any additional information you wish to use in your analysis is entered *after* the first three mandatory columns, and *after* the two optional columns, if they are present. There must be as many additional columns as you have specified in the **Number of Extra Columns** line, up to the limit of 35 additional columns. The title of the last column in the header must terminate with a divider character (**; :** or |).

The data type in an Extra Data Column can be either:

- *quantitative* (numeric measurements), or
- *qualitative* (alphanumeric labels or mnemonics).

When using the **Select Data** or **Track Data** options in DIPS, you will be asked to specify the data type of any column you select for use. The data in a single column must be of a consistent type (ie. *quantitative* or *qualitatitve*).

End of Data Flag: -1

The data section must be terminated by a negative one (-1) in the first column. Any text after this flag will be ignored by DIPS.

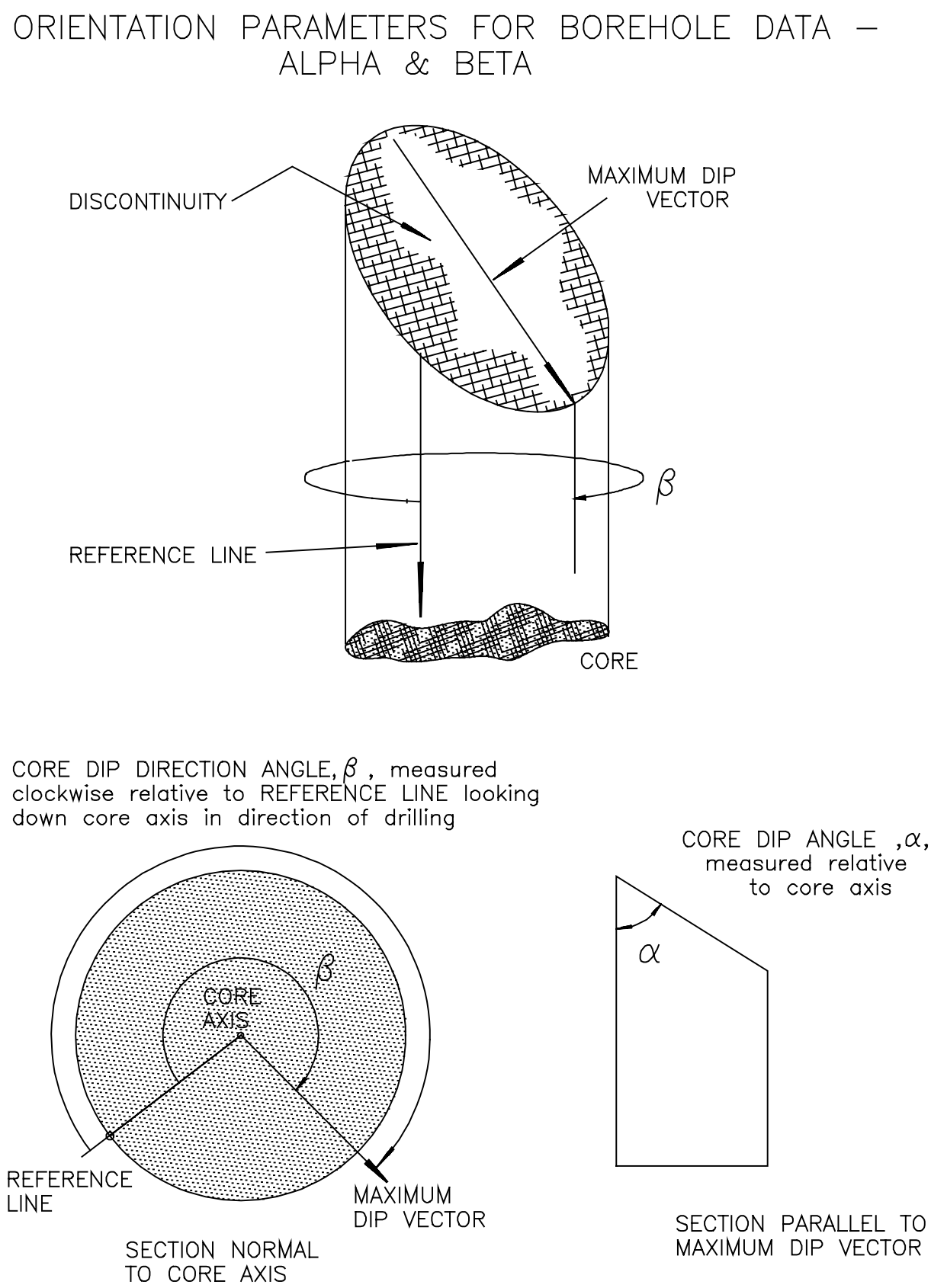


Figure 2.2: Definition of the orientation pair, alpha and beta, for borehole core logging data.

Minimum Data File Requirements

The minimum amount of information required for a valid data file is:

```
TITLE 1
TITLE 2
0 [traverses]
DIP/DIPDIRECTION
0 [declination]
NO QUANTITY
0 [extra data columns]
number   ;dip      ;direction;
         1        20       230
         2        35       225
         3        42       333
         4        66       010

        -1
```

Template.dip: a Working File Template

In the \EXAMPLES subdirectory, various template files can be found. The file template.dip can be used by a word processor or text editor to create a .dip data file by 'filling in the blanks'. Templates for LOTUS 123 and Microsoft EXCEL are also supplied as files template.wk1 and template.xls respectively.

Do not load template.dip into DIPS unless you have used it to create a valid data file.

Data File Errors

This section contains a discussion of common error messages and their significance. DIPS is able to detect most of the possible errors in the data file setup. Some errors, however, escape detection by DIPS, but will show up in the data information listing which is displayed immediately after a file is loaded. A discussion of these more elusive errors is given at the end of this chapter.

In the following discussion, the errors are listed in order of their occurrence in the file loading process, and a short diagnosis is given. Another cause of each of the following errors may be that a comment line preceding the line affected is missing an asterisk *. If these diagnoses are not correct, then the problem is more serious and may indicate a corrupt file which requires regeneration.

> Directory read error...any key to cont.

A system error. DIPS cannot access the current directory. May indicate a corrupt diskette or a problem with your hard drive.

> ERROR - END OF FILE REACHED...any key to cont.

This error can occur at any time during the file read process when the end of the data file is reached prematurely. This may indicate that the ASCII data file is not complete, is not a valid DIPS file, or may indicate that the file has been corrupted on your disk.

> FILE WIDTH ERROR (line #)...any key to continue.

This error indicates that a line exceeds 240 characters. A common cause of this error is incorrect creation of the ASCII data file by a word processor. The word processor has not included end of line characters. Refer to the manual for your word processor. Also use hard returns (*Enter*) in your word processor, and do not rely on the text wrap around feature when creating comment lines which exceed one page width in length. If this is not the problem, then a more drastic error has occurred which should be obvious if you view the file with a text editor or obtain a printout.

The "line #" indicates the location of the problem (also check comments inserted before the indicated line):

- line 1: The first title line has not been read
- line 2: The second title line has not been read
- line 3: The number of traverses has not been read
- traverse list: The error is in one of the traverse ID lines
- traverse: The traverse label > 120 char. (55 are read)

- orientation flag: The global orientation flag has not been read
- declination: The declination has not been read
- quantity flag: The quantity flag has not been read
- extra data num: The extra data number has not been read
- data header: The column header line has not been read
- data: This error occurs when COMPUTE is executed and indicates a line width >240 characters within the actual data portion of the file.

> Traverse data error...any key to cont.

> Traverse data assignment error...any key to cont.

> Traverse orientation data error...any key to cont.

These errors indicate errors in the traverse information lines. The first indicates an error in the TRAVERSE ID, the second is an error in the TYPE LABEL (LINEAR, PLANAR, BOREHOLE) and the third indicates an error in one of the two (or three for a borehole) TRAVERSE ORIENTATION VALUES. These orientation values must be integers and must not exceed 3 digits. The ID number must also be an integer. The TYPE LABEL must be one of the three possible options.

A more common cause of this error is incorrect use of divider characters (**| ; :**) in these lines. They must be used to separate each piece of information. The traverse orientation values must not exceed a spacing of three characters. **Do not** use a divider to start the line but **do** use one to terminate each traverse information line.

> No orientation flag in this data file...any key to cont.

> Orientation flag error...any key to cont.

These errors indicate problems with the global orientation flag line. The first indicates an absence of a line containing alphabetic characters. The flag has been skipped entirely and DIPS is reading the declination line instead. The second error message indicates that the character string in this line does not match one of the four options for the orientation flag.

> Declination data error...any key to cont.

DIPS cannot find a numeric value for declination in this line.

> No quantity flag in data file...any key to cont.

> Incorrect quantity flag in data file...any key to cont.

These errors indicate problems with the quantity flag line. The first indicates an absence of a line containing alphabetic characters. The flag has been skipped entirely and DIPS is reading the "number of extra columns" line instead. The second message indicates that the character string in this line does not match one of the two options for the quantity flag.

> Extra data number error...any key to cont.

The extra data column number is not present, is less than 0, or is greater than 35.

> Data column width error...any key to cont.

Incorrect use of divider characters (**| ; :**) in the column header line. The space between dividers must not exceed 18 characters. Do *not* use a divider to *start* the column header line, but *do* use one to *terminate* the line after the last header. Dividers must separate all column header labels and are used to set the column widths for the rest of the data file.

> OUT OF MEMORY ERROR...

> Memory allocation error...

> (Any error which indicates a memory related problem ...)

Any error message which indicates a memory problem probably indicates that you are out of RAM memory in your computer. DIPS requires a minimum of about 400 kilobytes of free RAM and may need more, depending on the size of your data file. Average RAM usage (i.e. 640 K with normal resident programs such as command.com, a mouse etc.) will permit data files of up to 7000-9000 data units. If you have memory problems, you may have too many RAM resident programs. Check your config.sys and your autoexec.bat files and your DOS manual.

Other error messages may occur which may indicate a corrupt data file. If file related errors occur and you receive related error messages which are not listed here or explained below, first try to create a new file.

If an error occurs which you cannot fix, please note all actions leading up to the failure. Please fax or mail a copy of the notes and of your data file to the address on the README file. A copy of the file on disk is extremely helpful.

Other Data File Related Errors

Other errors may occur which will not be detected by DIPS but will cause incorrect output. Always check the data file information list which is generated when a file is loaded, and which can be viewed at any time (ADVANCED version only) by selecting the **Datafile Info** button in the **FILES** menu.

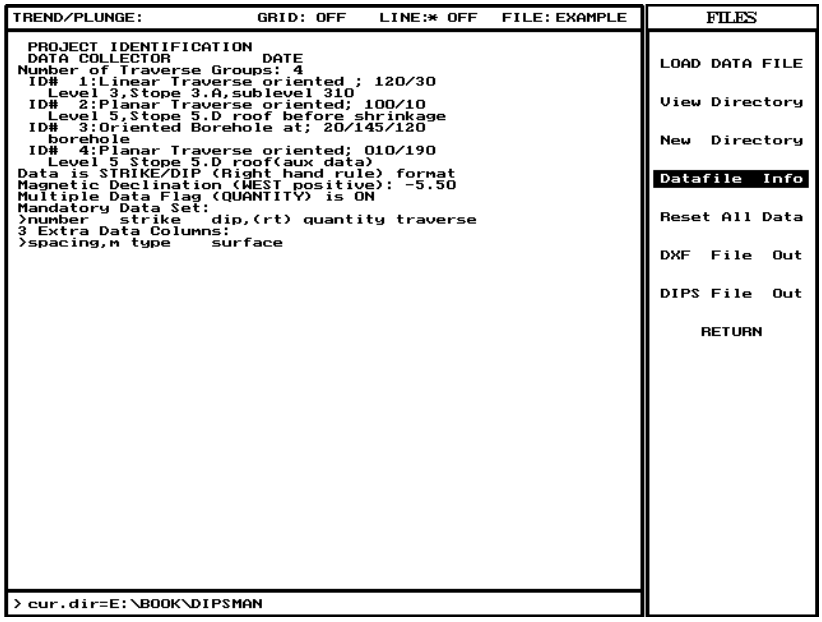


Figure 2.3: **Datafile Info** listing

If strange characters appear in the extra data column listing, if not all of the column headers are listed, or if any piece of information does not appear to be correct, there are a number of probable causes:

- The number of traverses is set to zero but a traverse column is present.
- The number of traverses is greater than zero but no traverse column is included, or the column is not in the correct position.
- The quantity flag is set to **NO QUANTITY**, but a quantity column is present.
- The quantity flag is set to **QUANTITY**, but no quantity column is present or the column is not in the correct position.
- The "number of extra data columns" does not conform to the number of extra columns actually present.

- A divider character (**| ; :**) is missing from the column header line or a duplicate divider (i.e. ;;) is present in the line.
- Dividers have not been used to terminate the traverse information lines or the column header line.
- The column header line begins with a divider.
- The data in the file does not conform to the column layout specified by the column header line.
- Alphabetic characters occur in the data portion of the file or in any of the mandatory data columns. (The extra data columns may contain alphanumeric labels).
- The end of file flag (-1) is missing from the data file or does not occur in the first column.
- Dividers have been used in the data portion. Use dividers in the column header line, but not in the actual data. Data columns are automatically set once the column header line is created.