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1981/35. Guide to the use of the DELTA plotting programs

E.L. Martin

Abstract

DELTA1 and DELTA2 are FORTRAN triangular variation plotting programs. The latter is used for plotting sand and gravel diagrams whereas DELTA1 is for general use.

OUTLINE OF PROGRAMS

The programs are written in FORTRAN for the Perkin-Elmer 6/16 and Complot DP-8 plotter. Program DELTA2 differs from DELTA1 only by the inclusion of program lines to produce additional lines used for sand and gravel resource plots (fig. 2).

Data is input as X, Y, and Z real positive values, which are normalised by the program prior to plotting.

Input is either from a previously compiled data file, or by direct entry at run time. Titling and labelling information may either be included in the data file or entered at run time.

A total of 16 different plot symbols may be used (fig. 1), and each point may be numbered if required. In addition to the plotter output a listing of the data may be printed with reference numbers corresponding with those used for labelling the plot points.

The scale of the plot is entered at run time, together with the offset from the right-hand margin of the plot paper (to make the best use of the plot paper). For publication the base of the triangle will normally be 148 mm, for one plot per page or 100 mm for two plots per page.

DATA FILE SPECIFICATIONS

Data files are best created using EDITOR as this permits the use of a format line which simplifies keyboarding. HLPTED gives full details for using EDITOR. The following outline gives the instructions for creating a new data file:

(1)	AL DATA, 2, 1, 72	Allocate output file
(2)	AS 0999	Assign core buffer
(3)	AS 0422	Assign printer
(4)	RU EDITOR	Run the editor
(5)	Wait for prompt	
	(C><IS><IL> LC=0)	
(6)	FL, RETURN	
(7)	CXXXXXXxxYYYYYYyyZZZZZZzzMAL X------Y------Z------+------>	
		Type in format line
(8)	CR, RETURN	Enter input mode
(9)	Enter text	Terminate entry by]
(10)	EX, RETURN, 1, RETURN	Write to output file (wait for prompts)
(11)	PA, RETURN, CL	Exit program and close file

The format line (see 7 above) consists of two parts, separated by a space. The left hand part is for numerical data (X, Y, Z) and codes; the right hand part is for text entry. The FORTRAN format is:

A1, 3F8.2, I2, I1, 1X, 32A1

The sequence of records and the code letters (col. 1 of each record) identifying the record type are:

(1)   File name (F)
(2)   Titling, labelling or data (T, X, Y, Z or blank)
(3)   End of file (E)

The various types of record are as follows:

(1)   FILENAME (F in col. 1). The name of the file is entered in
       cols. 30-44 under X------Y------Z.
(2)   TITLE OF PLOT (T in col. 1). The title to be printed under
       the plot diagram is entered in cols. 30 to 58, under
       X------Y------Z------+------>
(3)   LABELLING OF AXES (X, Y or Z in col. 1). These records provide
       the labels for the apices of the triangle. Enter the appro-
       priate code in col. 1 and the label in cols. 30-44, under
       X------Y------Z. To preserve alignment left justify the X
       label, centre the Y label and right justify the Z label. Text
       entered beyond col. 44 is ignored.
(4)   DATA (col. 1 must be blank). Enter X, Y and Z values in F8.2
       format under XXXXXXxxYYYYYYyyZZZZZZzz in cols. 2-25. If
       required cols. 30-44 can be used to enter an identifier which
       will be included in the listing on the printer at run time.
       The plot symbol to be used is entered under MA (right justified)
       in cols. 26 and 27. Valid numbers are 0 to 15. 1 to 15 are as
       in MARKER, 0 is a dot, 15 is a circle. Enter a 1 under L (col.
       28) if points are to be labelled with a number, otherwise leave
       this column blank. The labelling code may be overridden at
       run time.
(5)   END OF FILE. Enter E in col. 1 and the plotter restore code
       required in col. 28 (under L): this will normally be 2.

RUNNING THE PROGRAM

(1)   AC DATA, 1   Activate data file to LU 1 (or AS 0120 for VDT
                        input).
(2)   AS 0899   Assign core buffer used for PWRITE.
(3)   AS 0912   Assign plotter. Ensure plotter is on line, etc.
(4)   AS 0422   Assign printer for listing (or AS 0420 to list
                        on VDT).
(5)   RU DELTA1 (or RU DELTA2 for sand and gravel plots. Run program.
(6)   Enter distance in mm. from right hand of paper to base of
       triangle – valid values are 20 to 750.
(7)   Enter length of base of triangle required, normally 148 mm for
       publication use. The sum of this value and the offset entered
       under (6) may not exceed 900 mm.
(8)   Enter control code for labelling. Valid codes are zero (obey
       data file codes); 1 (override data file codes, label all points)
       or 2 (override data file codes, no point labelling).
(9)   Input file will now be read and a listing made on LU 4; the
       outline of the triangle will be drawn and the points plotted.
       If titling and labelling information has not been included in
       data file, this may be entered following the appropriate
       prompts.

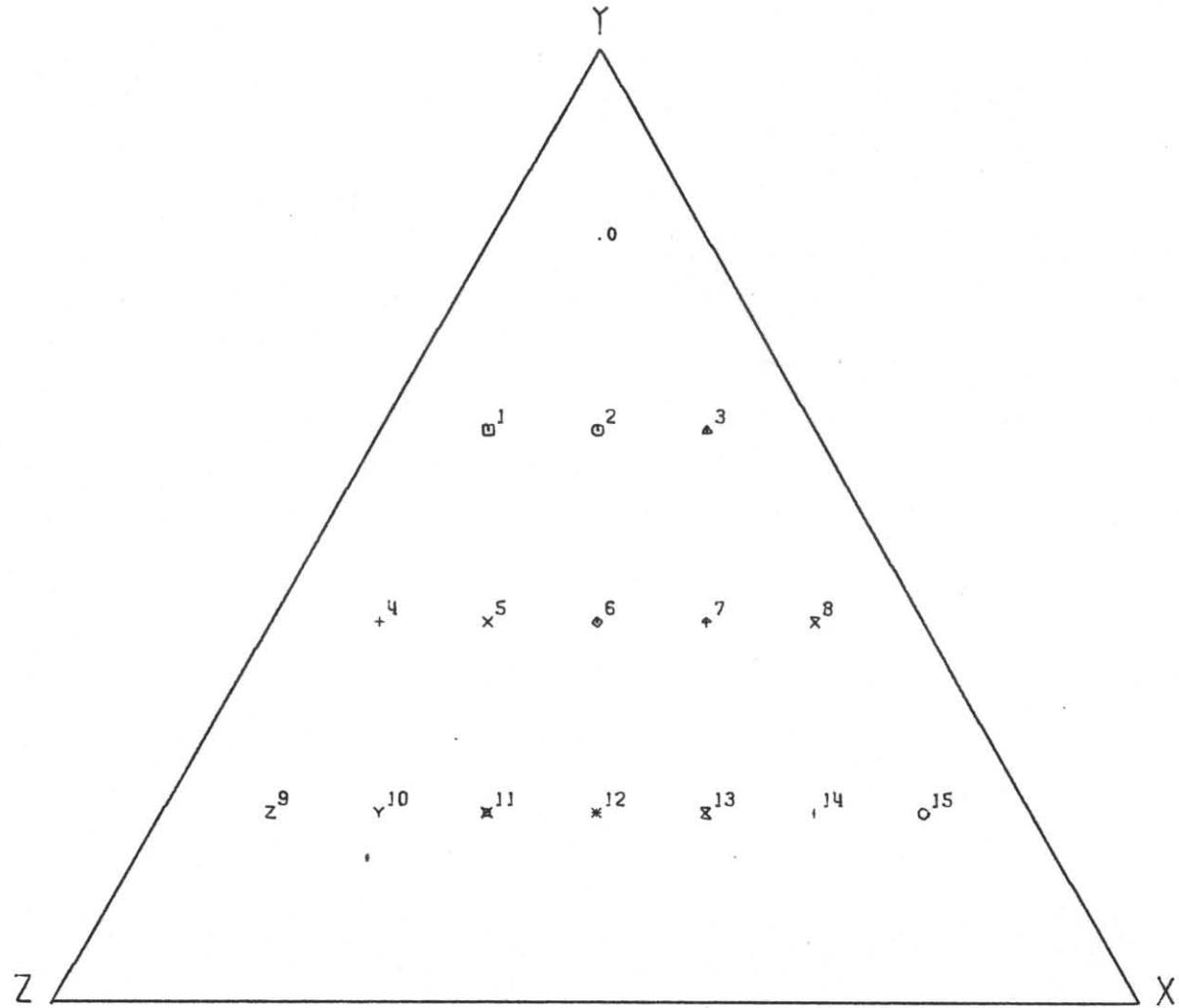   If there is no input file, data must be entered from the VDT

aligned correctly under the format line which will appear on the screen. The format line is only displayed once, (before input) however it can be displayed again by typing Q, RETURN during input. Remember to terminate entry with an E (end of file) record as described above.

(10) CL to close file. To rerun the program type ST, remember to rewind the file if necessary, or activate another file.

EXAMPLE OF AN INPUT FILE

A format line (which does not form part of the file) has been included above and below the file records:

```
CXXXXXXxxYYYYYYyyZZZZZZzzMAL X------Y------Z------+------>
F                            FILE TRINUM
T                            EXAMPLE OF TITLING FOR DELTA1
X                            X
Y                                      Y
Z                                                Z
   73.46      8.44     18.10      41 A605
   76.74     18.00      5.26      41 A606
   78.65     15.11      6.24      41 A607
   80.14     12.33      7.53      41 A608
   20.45     32.00     47.55      51 B751
   18.90     37.44     43.66      51 B752
   14.23     33.11     52.66      51 B753
   12.17     33.88     53.95      51 B754
   35.22     22.55     42.23     121 C455
   30.34     10.44     59.22     121 C456
   30.32     15.00     54.68     121 C457
   40.56     15.88     43.56     121 C458
   10.76     67.77     21.47     151 D145
   15.98     70.88     13.14     151 D146
   20.60     75.11      4.29       1 E157
   22.83     72.00      5.17       1 E158
E                            2
CXXXXXXxxYYYYYYyyZZZZZZzzMAL X------Y------Z------+------>
```

EXAMPLE OF LISTING ON PRINTER

```
BASE = 148
FILE TRINUM
    1  A605              73.46       8.44      18.10
    2  A606              76.74      18.00       5.26
    3  A607              78.65      15.11       6.24
    4  A608              80.14      12.33       7.53
    5  B751              20.45      32.00      47.55
    6  B752              18.90      37.44      43.66
    7  B753              14.23      33.11      52.66
    8  B754              12.17      33.88      53.95
    9  C455              35.22      22.55      42.23
   10  C456              30.34      10.44      59.22
   11  C457              30.32      15.00      54.68
   12  C458              40.56      15.88      43.56
   13  D145              10.76      67.77      21.47
   14  D146              15.98      70.88      13.14
   15  E157              20.60      75.11       4.29
   16  E158              22.83      72.00       5.17
```
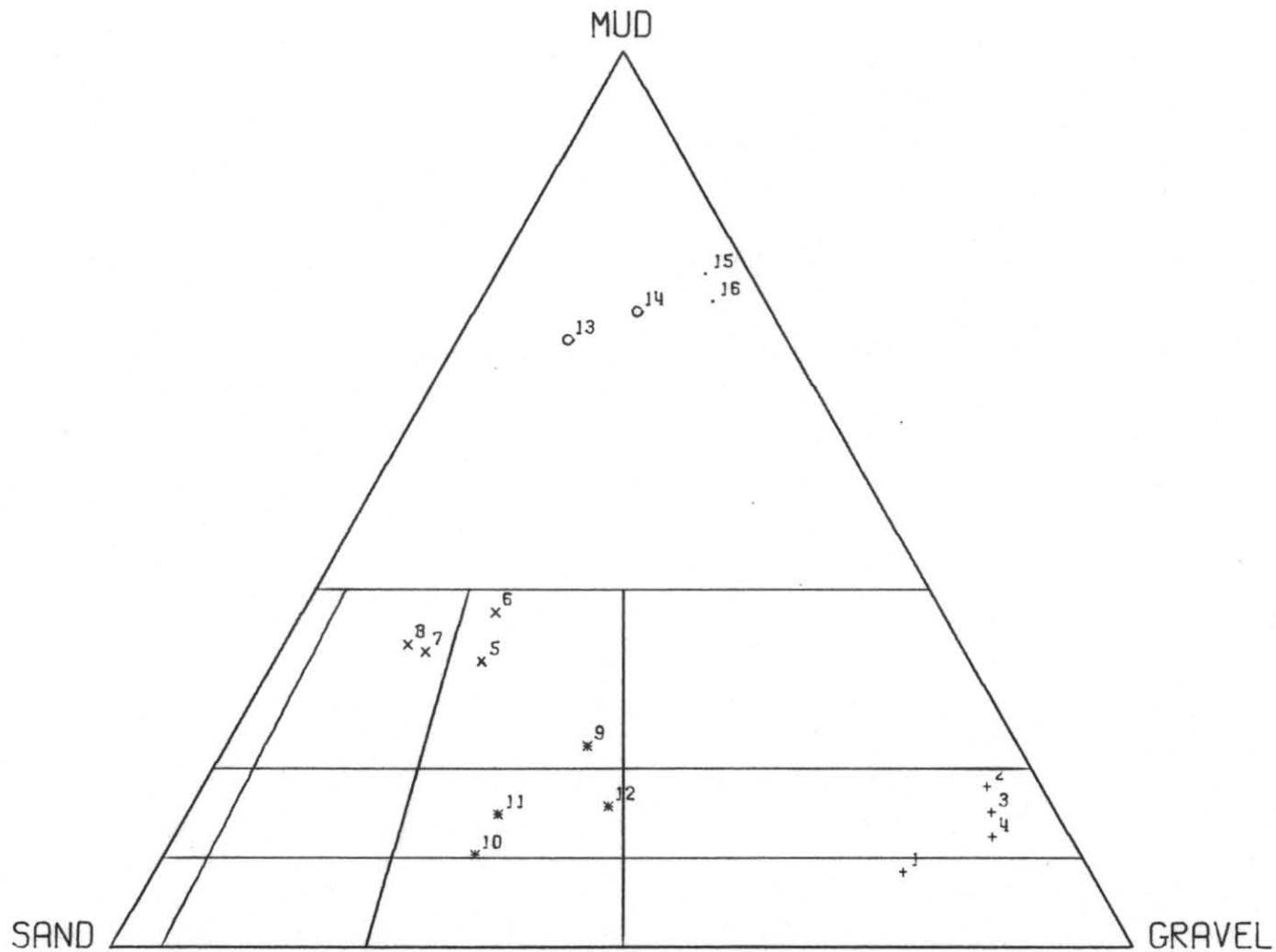
[25 June 1981]

Figure 1.   EXAMPLES OF PLOT SYMBOLS

Figure 2.

EXAMPLE OF TITLING FOR DELTA2