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1984/73. DIGPLT preliminary report. Scale change of maps using the digitiser and plotter

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Abstract

The program DIGPLT enables scale change of maps by tracing the original map on the digitiser and plotting at the altered scale on the plotter.

INTRODUCTION

This report is preliminary. The program DIGPLT is operational and has been tested and used for production work. However, the program is very basic and it is planned to offer some additional program options once the users of this program have had a chance to become familiar with its operation and are in a position to recommend additions to suit particular requirements.

THE DIGITISER

The digitiser is currently equipped with a 12 button cursor. It is hoped to soon purchase a stylus, a more appropriate tool for this type of digitisation than the cursor. Along the bottom section of the left hand vertical margin of the digitising tablet are a row of switches and indicator lights. The PROXIMITY light glows when the cursor active device is within approximately 10 mm (3/8") of the tablet surface and in the active area. The digitiser will not acquire data unless the input device (active part of cursor or stylus) is in "proximity".

The REMOTE light is not operative as the digitiser has been set to LOCAL for current usage. RESET ORIGIN and RELOCATE ORIGIN may also be ignored, being not currently enabled (the co-ordinate origin is set to the extreme bottom left corner of the active area of the tablet).

The digitiser may acquire co-ordinate data in a variety of ways. When the POINT switch is pressed the adjacent indicator lamp will light and data may then be collected a point at a time. Each time the cursor is in "proximity" and a cursor button is pressed then that point will be digitised. POINT is recommended for drawing straight lines.

In STREAM mode (engaged by pressing the appropriate button) a constant stream of co-ordinate data is acquired at a rate currently set at 50 co-ordinates per second. It is unlikely that this mode will be required for data acquisition during map digitisation.

SWITCH STREAM mode is a variant of the STREAM mode in which the input device must be actuated (that is, the stylus pressed down or the cursor button held depressed) in proximity for data to be acquired.

INCREMENTAL mode is used in conjunction with STREAM or SWITCH STREAM. In this mode the co-ordinate points are digitised at fixed increments of input device movement across the tablet. The digitiser increment setting is currently 0.05". This is the minimum change of position (net vertical or net horizontal) of the input device required for transmission by the digitiser of a new co-ordinate position.

RUNNING THE PROGRAM

The interactive running of the program is commenced by typing "DIGIT" and entering the scale of the map to be digitised and the scale at which it is to be plotted (in response to the appropriate screen prompts). The next prompt will instruct the user to enter POINT mode and define (with the cursor, by pressing the button with the cursor in position) the four corners of the limits to be digitised. The program then takes the co-ordinates of the left hand bottom corner and treats this as the origin. If you digitise to the left or below this point the output X or Y co-ordinates respectively will be correct but negative and the plotter origin will have to be reset to allow plotting on the paper.

When digitising, each co-ordinate pair is tagged with an identifying character. This character is the digit pushed on the cursor button or in STREAM mode (if the cursor button is not pressed) it is a comma. The program examines this tag character and plots to the current point if the tag is the same as the previous character or moves to the current point with the pen up if the tag is different from the previous one.

When plotting straight lines use the POINT mode and straight lines will be drawn between successive points having the same tag. For plotting irregularly or regularly curved lines it is recommended to use INCREMENTAL in conjunction with either SWITCH STREAM or STREAM and SWITCH STREAM. When using INCREMENTAL and SWITCH STREAM data will be acquired by following the curve with the cursor in proximity and a cursor button held depressed. In order not to plot lines between different line segments the button pressed to digitise the current line should be different from that used to digitise the previous line. In the case of digitising a long line, it may be felt that it would be easier to trace the line without having the cursor button depressed. This may be done by using INCREMENTAL in conjunction with both STREAM and SWITCH STREAM. However, some care must be taken in using the following procedure. Bring the cursor onto the start of the line to be digitised with INCREMENTAL and SWITCH STREAM engaged. With the cursor held stationary, press any cursor button and then engage STREAM (this will automatically disengage SWITCH STREAM). You may now begin to trace the line and digitising will occur without any cursor button being depressed - in fact you should ensure that you do not press any cursor buttons unless you wish to produce a (very likely irregularly) dashed line. If you wish to produce a dashed line this is better done using INCREMENTAL and SWITCH STREAM or better still by plotting software. On reaching the end of the line being digitised, remove the cursor from the tablet along a line perpendicular to the tablet surface (if you remove the cursor in a sideways fashion you may inadvertently collect unwanted data while remaining briefly in proximity). You should now engage SWITCH STREAM (thereby disengaging STREAM) and are now ready to repeat the process on the next line (or else remain in SWITCH STREAM if you wish to now use this mode without STREAM).

When digitising is complete and you wish to exit the program you should engage POINT mode and place the cursor in the far right hand corner of the tablet, outside the active area. Hold a button depressed and move the cursor in the direction of the bottom left hand corner. When the cursor reaches the top right hand corner of the active area the digitiser will beep and the program will terminate. A plot file called PANPLT.TMP will have been created and this may be plotted in the usual manner.

[2 November 1984]