

UR1986_64

- FINAL REPORT -

1986/64. STNDSTN - A FORTRAN program for plotting the distribution of areally sampled data (Revision 1).

R. G. Richardson

Abstract

This program plots sample points, the data value, and the reading number for data on a metric grid in the range 0 to 1000 km east and north. The plotting scale is specified when the program is run. If data points are less than a specified distance apart on the map only the first of the close points is plotted.

THE PROGRAM

STNDSTN (Appendix 1)

This program was written for plotting gravity data, but any data in a suitable format can be plotted. The program reads the search parameters and plotting options from logical unit 5 and the data from logical unit 4. A listing of the close data values is output on logical unit 6 and the statistics of the search are output on logical unit 7.

Control data read from logical unit 5 is:

- PWIDTH - V if the AO plotter paper is rotated to have an X-axis 31.4 inches long and a Y-axis 44.3 inches long.
- leave blank for the AO plotter paper to have an X-axis 44.3 inches long and a Y-axis 31.4 inches long.
- XMIN - the western boundary of the data (km)
- XMAX - the eastern boundary of the data (km)
- YMIN - the southern boundary of the data (km)
- YMAX - the northern boundary of the data (km)
- SCALE - the plotting scale, e.g. 50 000

The labelling used depends on the value of SCALE.

- (a) SCALE > 100 000
 - label each multiple of 10 km
 - draw a line parallel to the prime axes at each multiple of 100 km
- (b) 25 000 < SCALE < 100 000
 - label each 1 km
 - draw a line parallel to the prime axes at each multiple of 10 km
- (c) 5000 < SCALE < 25 000
 - label each 250 m
 - draw a line parallel to the prime axes each 1 km
- (d) 2000 < SCALE < 5000
 - label each 100 m
 - draw a line parallel to the prime axes each multiple of 500 m
- (e) SCALE < 2000
 - draw a line parallel to the prime axes each multiple of 100 m

If SCALE is such that the map will not plot on the paper width, the ranges and scale may be altered.

IPLCE - the number of decimal places to use for data values written on the plots.

AOK - Y if reduced size symbols are required for close data points, N otherwise.

MINDIST- the minimum acceptable distance between plotted data points (mm).

TITLE - the title for the plot followed by ..

IOPT - select the functions desired from the program.

- (a) IOPT = 1
plot symbols only at the data points.
- (b) IOPT = 2
plot a symbol at each data point and a circle representing the maximum acceptable deviation from the nominal data point. The X and Y separations (XSP, YSP) of the nominal points and the acceptable distance from the nominal point are read. Starting at (XMIN, YMIN) circles are drawn at intervals XSP, YSP until (XMAX, YMAX) is reached. This is a very slow process.
- (c) IOPT = 3
plot symbols at the data points and write the data point numbers.
- (d) IOPT = 4
plot symbols at the data points and write the data values.
- (e) IOPT = 5
plot symbols at the data points and write both the data point numbers and the data values.

AOK - Y if more plots to follow, N otherwise.

Data input from logical unit 4 is:

SURVNO, STATNO, X, Y, BA - format (I5, 1X, I4, 2F9.1, 36X, F8.2)

SURVNO (optional) - up to 14 different survey numbers may be used.
A different data point symbol is used for each survey number.

STATNO - the data point number.

X, Y - the east and north co-ordinates of the data point in metres
(X, Y in the range 0.0 to 700 000).

BA - the data value.

A summary of the close data is output on logical unit 6. The total number of data points in the file on logical unit 4 and the number of points plotted are printed on logical unit 7.

Appendices 2 to 8 of Richardson (1983) show the plotted output of the same set of data for the following control inputs:

<i>Appendix</i>	<i>XMIN</i>	<i>XMAX</i>	<i>YMIN</i>	<i>YMAX</i>	<i>SCALE</i>	<i>IPLCE</i>	<i>SMALL SYMBOL</i>	<i>IOPT</i>
2	500.5	520.5	294.5	322.5	250 000	0	Y	1
3	500.5	514.5	294.5	312.5	100 000	0	N	3
4	500.5	506.5	294.5	305.5	50 000	1	N	4
5	500.5	503.5	294.5	298.5	25 000	1	N	5
6	500.9	502.2	294.9	296.1	5 000	1	N	5
7	500.9	501.3	294.8	295.3	2 500	1	N	5
8	500.9	501.1	294.8	295.1	2 000	1	N	5

REFERENCE

RICHARDSON, R.G. 1983. A FORTRAN program for plotting areally distributed gravity (or other) data (Revision 1). *Unpubl. Rep. Dep. Mines Tasm.* 1983/44.

[9 October 1986]

Program STNDSTN

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$TITL GRAVITY STATION PLOT WITH CLOSE STATION REMOVAL
C STNDSTN
C PLOTS GRAVITY STATION NUMBERS AND B.A. AT THE STATION LOCATION
C USES A DIFFERENT SYMBOL FOR UP TO 14 SURVEYS.
C WHERE STATIONS ARE CLOSER THAN A SPECIFIED DISTANCE ON THE MAP
C THE CLOSE VALUES ARE PRINTED OUT AND NOT PLOTTED
C ASSUMES COORDINATES ARE IN KM.
C GRAVITY DATA ON LU 4
C CONTROL LU 5
C LIST OF STATIONS ON LU 6
C NUMBER OF STATIONS LU 7
  REAL SCALE,FACT,BA,X,Y,XPLOT(30000),YPLOT(30000),PWIDTH,
  . YMXLST,ERRRAD,XBOT,YBOT,YMXPLT,YTMP,MINDIST
  DOUBLE PRECISION XMIN,XMAX,YMIN,YMAX
  INTEGER*4 IXMIN,IXMAX,IYMIN,IYMAX,SPCE,DFACT,TXSP,DX,DY,
  . IFXMIN,IFXMAX,IFYMIN,IFYMAX,XSP,YSP
  INTEGER*2 NSURV,SURVEY(50),TITLE(40),NCLOSE
  . IOPT,I,SURVNO,STATNO,NTOT,NPLOT,YES,NO,AOK,AR,AS
  LOGICAL SURV,IER,LINE,LABEL,METRES
  DATA YES/1HY/,NO/1HN/,AR/1HR/,AS/1HS/
  OPEN(UNIT=5,FILE='CON:')
C SET TO TAKE INPUT FROM CONSOLE
  YMXPLT=0.
C WIDTH OF PLOTTER PAPER USED
  WRITE(5,864)
  864 FORMAT(' DEFAULT PAPER SIZE HAS XMAX=44.3", YMAX=31.4"/
  . ' TYPE V HERE FOR PAPER SIZE XMAX=31.4", YMAX=44.3"/)
  READ(5,229) AOK
  PWIDTH=31.4
  IF (AOK .EQ. 'V') PWIDTH=44.3
C Y AXIS IS 31.4 INCHES IF PAPER IS IN DEFAULT DIRECTION
C OR 44.3 INCHES IF HP AXES ARE ROTATED
  21 NTOT=0
  NPLOT=0
C USED TO COUNT THE TOTAL NUMBER OF STATIONS IN THE FILE AND THE
C NUMBER OF STATIONS PLOTTED
  NCLOSE=0
C THE NUMBER OF CLOSE STATIONS PRINTED OUT
  860 WRITE(5,100)
  100 FORMAT(' XMINNNNNN XMAXXXXXX IN KM')
  READ(5,*) XMIN,XMAX
  IF (XMAX .LE. XMIN) GOTO 860
C LOWER AND UPPER X VALUES (KM E)
  XMIN=XMIN*1000.0D00
  IXMIN=XMIN
  XMAX=XMAX*1000.0D00
  IXMAX=XMAX
C CONVERT TO METRES
  861 WRITE(5,102)
  102 FORMAT(' YMINNNNNN YMAXXXXXX IN KM')
  READ(5,*) YMIN,YMAX
  IF (YMAX .LE. YMIN) GOTO 861
C LOWER AND UPPER Y VALUES (KM N)
  YMIN=YMIN*1000.0D00
  IYMIN=YMIN
  YMAX=YMAX*1000.0D00

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      IYMAX=YMAX
C CONVERT TO METRES
862 WRITE(5,103)
103 FORMAT(' SCALE?(E.G. 50000.))'
      READ(5,*) SCALE
      FACT=1.E+2/(2.54*SCALE)
C THE FACTOR TO CONVERT FROM GRID METRES TO PLOTTER INCHES
      LABEL=.TRUE.
      METRES=.TRUE.
      IF (SCALE .LE. 2001.) GOTO 851
      IF (SCALE .LE. 5001.) GOTO 852
      IF (SCALE .LE. 25005.) GOTO 853
      IF (SCALE .LE. 100010.) GOTO 854
C
C COPE WITH SCALE GREATER THAN 100000. HERE
      METRES=.FALSE.
      DFACT=10000
      SPCE=100000
      TXSP=10000
      GOTO 855
C
C SCALE .LE. 100000,SCALE .GT. 25000
854 METRES=.FALSE.
      DFACT=1000
      TXSP=1000
      SPCE=10000
      GOTO 855
C
C SCALE .LE. 25000,SCALE .GT. 5000
853 DFACT=250
      TXSP=250
      SPCE=1000
      GOTO 855
C
C SCALE .LE. 5000,SCALE .GT. 2000
852 DFACT=100
      TXSP=100
      SPCE=500
      GOTO 855
C
C SCALE .LE. 2000
851 DFACT=100
      LABEL=.FALSE.
      TXSP=10
      SPCE=100
855 CONTINUE
      IFXMIN=((IXMIN+1)/DFACT)*DFACT
      FXMIN=IFXMIN
      IFXMAX=((IXMAX+DFACT-1)/DFACT)*DFACT
      FXMAX=IFXMAX
      IFYMIN=((IYMIN+1)/DFACT)*DFACT
      FYMIN=IFYMIN
      IFYMAX=((IYMAX+DFACT-1)/DFACT)*DFACT
      FYMAX=IFYMAX
C GET THE RANGES AND ROUND UP AND DOWN TO THE NEAREST PIP
C GET THE MAXIMUM Y VALUE TO WORK OUT IF THE PLOT CAN POSSIBLY
C FIT ON THE PAGE
      YTMP=FYMAX
      CALL XFORM(YTMP,FYMIN,FACT)
      YTMP=YTMP+2.1

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C GET TOTAL WIDTH OF NEW PLOT INCLUDING TICKS AND LABELS
  IF (YTMP .LE. PWIDTH) GOTO 870
C WILL FIT ON PAPER
  863 WRITE(5,230)
  230 FORMAT(' PLOT WILL NOT FIT'/
    . ' CHANGE X AND Y RANGES (R) OR SCALE (S)'/ ' ?')
  READ(5,229) AOK
  IF (AOK .EQ. AR) GOTO 860
C NEW VALUES FOR X AND Y RANGES
  IF (AOK .NE. AS) GOTO 863
  GOTO 862
C EITHER NEED A NEW SCALE OR HAVE AN INVALID OPTION
  870 CONTINUE
C
  NSURV=1
C THE COUNTER FOR THE NUMBER OF DIFFERENT SURVEY NUMBERS
  REWIND 4
C INPUT FILE
  SURV=.FALSE.
  WRITE(5,231)
  231 FORMAT(' NUMBER OF DECIMAL PLACES (0-6)?/' I')
  READ(5,*) IPLCE
  IF (IPLCE .EQ. 0) IPLCE=-1
C CONVERT 0 DEC. PLACES TO -1 FOR CONVENTION USED IN NUMBER
  FACTMK=1.0
C THE FACTOR FOR SCALING THE SYMBOLS
  232 WRITE(5,233)
  233 FORMAT(' SMALL SYMBOLS? (Y OR N)')
  READ(5,229) AOK
  IF (AOK .EQ. NO) GOTO 234
  IF (AOK .NE. YES) GOTO 232
  FACTMK=0.5
  234 CONTINUE
  WRITE(5,236)
  236 FORMAT(' MINIMUM SEPARATION OF STATIONS ON MAP (mm.)?')
  READ(5,*) MINDIST
  MINDIST=MINDIST/25.4
C CONVERT TO INCHES
  MINDIST=MINDIST**2
C NOW SQUARE IT TO SAVE LATER SQUARE ROOTS
  WRITE(5,105)
  105 FORMAT(' ENTER MAP TITLE - TERMINATE BY &')
  READ(5,106) TITLE
  106 FORMAT(40A2)
  25 WRITE(5,109)
  109 FORMAT(' OPTIONS'/
    . ' 1 LOCATIONS'/
    . ' 2 LOCATIONS WITH CIRCLES ROUND NOMINAL POSITION'/
    . ' 3 STATION NUMBERS'/
    . ' 4 GRAVITY ANOMALY'/
    . ' 5 STATION NUMBER AND GRAVITY ANOMALY'/' 0')
  READ(5,*) IOPT
  IF (IOPT .LE. 0) GOTO 25
  GOTO (802,801,802,802,802),IOPT
  GOTO 25
C READ THE OPTION AND GO TO THE RIGHT PALCE
  801 WRITE(5,111)
  111 FORMAT(' XXXXSPACE YYYSPACE IN METRES')
  READ(5,*) XSP,YSP
C GET THE NOMINAL STATION SPACING

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WRITE(5,112)
112 FORMAT(' RRRRADIUS OF CIRCLE IN METRES')
READ(5,*) ERRRAD
C NOW HAVE ALL ADDITIONAL DETAILS NEEDED FOR OPTION 2
C
802 WRITE(6,108) TITLE,XMIN,XMAX,YMIN,YMAX,SCALE
108 FORMAT(1X,40A2/' BETWEEN',F9.1,' AND',F9.1,' M E AND',
. F9.1,' AND',F9.1,' M N'/' SCALE 1:',F8.0)
IF (YMXPLT+YTMP .LE. PWIDTH .AND. YMXPLT .NE. 0.0) GOTO 23
C FITS ON THE PAPER SO BRANCH
IF (YMXPLT .GT. 0.) CALL RSTR(1)
C INDEX TO THE NEXT PLOT
IF (YMXPLT .EQ. 0.) CALL INITAL(9,200,36,1,0,0)
C INITIALISE PLOTTER
CALL PLOT(0.5,2.,-3)
C MOVE TO 0.5,2.0 AND CALL IT 0.0,0.0
YMXPLT=YTMP
YMXLST=YTMP
GOTO 24

C
C NOW FOR A PLOT THT FITS ON THE WIDTH AVAILABLE
23 CALL PLOT(0.0,YMXLST,-3)
C MOVE TO ABOVE THE LAST PLOT AND CALL IT 0.0,0.0
YMXPLT=YMXPLT+YTMP
YMXLST=YTMP
C UPDATE YMXPLT
C
24 CONTINUE

C
C NOW FOR SOME AXES
DX=IFXMIN-TXSP
10 DX=DX+TXSP
XTMP=DX
CALL XFORM(XTMP,FXMIN,FACT)
CALL PLOT(XTMP,0.,2)
C MOVE TO START OF PIP
LINE=MOD(DX,SPCE) .EQ. 0
C CHECK TO SEE IF NEED TO DRAW LINE
CALL XLABEL(DX,FYMIN,FYMAX,FACT,XTMP,LABEL,LINE,METRES)
IF (IFXMAX .GT. DX) GOTO 10
C GO ALONG BOTTOM AND FINISH AT A PIP WITH DX=FXMAX,XTMP=FXMAX IN PLOTTER INCHES
C
C UP R.H.S.
DY=IFYMIN-TXSP
11 DY=DY+TXSP
YTMP=DY
CALL XFORM(YTMP,FYMIN,FACT)
CALL PLOT(XTMP,YTMP,2)
LINE=MOD(DY,SPCE) .EQ. 0
C CHECK TO SEE IF MULTIPLE
CALL YLABEL(DY,FXMIN,FXMAX,FACT,YTMP,LABEL,LINE,METRES)
IF (IFYMAX .GT. DY) GOTO 11
C NOW GONE UP R.H.S. DY=FYMAX
C YTMP=FYMAX IN PLOTTER COORDS.
C
CALL PENDN
12 XTMP=DX
CALL XFORM(XTMP,FXMIN,FACT)
CALL PLOT(XTMP,YTMP,1)
CALL PLOT(XTMP,YTMP+0.1,1)

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CALL PLOT(XTMP, YTMP, 1)
DX=DX-TXSP
IF (DX .GE. IFXMIN) GOTO 12
C DRAWN PIPS ALONG TOP
C
14 YTMP=DY
CALL XFORM(YTMP, FYMIN, FACT)
CALL PLOT(0., YTMP, 1)
CALL PLOT(-0.1, YTMP, 1)
CALL PLOT(0., YTMP, 1)
DY=DY-TXSP
IF (DY .GE. IFYMIN) GOTO 14
C DRAWN PIPS DOWN L.H.S.
CALL PENUP
CALL PWRITE(0.5, -1.0, 0.28, 0., TITLE)
C THE TITLE IS PACKED BY THE READ
C WRITE THE TITLE
C
IF (IOPT .NE. 2) GOTO 31
C DONT NEED TO DRAW CIRCLES ROUND NOMINAL POSITION SO GO ELSEWHERE
ERRRAD=ERRRAD*FACT
C GET RADIUS IN PLOTTER INCHES
IXBOT=IXMIN
IYBOT=IYMIN
C STARTING VALUES FOR NOMINAL POSITIONS
16 X=IXBOT
CALL XFORM(X, FXMIN, FACT)
C TRANSFORM TO INCHES
17 Y=IYBOT
CALL XFORM(Y, FYMIN, FACT)
C PLOTTER INCHES
CALL CIRCLE(X, Y, ERRRAD)
C USE THE INBUILT CIRCLE SOFTWARE
IYBOT=IYBOT+YSP
IF (IYBOT .LE. IYMAX) GOTO 17
C ALLOW SOME MARGIN FOR THE REPEATED ADDITIONS
IYBOT=IYMIN
IXBOT=IXBOT+XSP
IF (IXBOT .LE. IXMAX) GOTO 16
C CHECK TO SEE STILL IN X RANGE
C DONT TRY TO OPTIMISE PEN MOVEMENT IN THE ABOVE
C
C NOW SET UP THE OTHER OPTIONS
31 YBOT=0.0
IF (IOPT .EQ. 5) YBOT=0.07
C OFFSET FOR LABELLING NUMBER AND GRAVITY
C NOW TO GO THROUGH THE DATA
30 READ(4, 104, END=50) SURVNO, STATNO, X, Y, BA
104 FORMAT(15, 1X, I4, 2F9.1, 36X, F8.2)
NTOT=NTOT+1
C INCREMENT THE TOTAL NUMBER OF STATIONS
IF (X .LT. XMIN .OR. X .GT. XMAX .OR. Y .LT. YMIN
. .OR. Y .GT. YMAX) GOTO 30
C CHECK TO SEE IF IN AREA
IF (SURV) GOTO 53
SURV=.TRUE.
SURVEY(1)=SURVNO
53 CONTINUE
DO 15 ISYMB=1, NSURV
IF (SURVEY(ISYMB) .EQ. SURVNO) GOTO 20

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C ALREADY KNOW THIS NUMBER
  15 CONTINUE
    NSURV=NSURV+1
    ISYMB=NSURV
    SURVEY(NSURV)=SURVNO
C ADD NEW SURVEY NUMBER TO INDEX
  20 CONTINUE
    ASURV=STATNO
C GOT STATION NUMBER ALMOST AS AN INTEGER
    XXTMP=X
    YYTMP=Y
    CALL XFORM(X,FXMIN,FACT)
    CALL XFORM(Y,FYMIN,FACT)
C NOW HAVE THE COORDINATES AS INCHES ON THE PLOT
    IF (NPLOT .GT. 0) THEN
C MUST HAVE AT LEAST ONE STATION TO HAVE A DISTANCE FROM
    DO 27 I=1,NPLOT
      IF (((X-XPLOT(I))**2)+((Y-YPLOT(I))**2) .GE. MINDIST) GOTO 27
C IF MORE THAN MIN DIST APART CHECK THE NEXT ONE ALREADY
C PLOTTED
    NCLOSE=NCLOSE+1
    WRITE(6,107) SURVNO,STATNO,XXTMP,YYTMP,BA
  107 FORMAT(I5,'.',I4,2F10.1,F10.2)
C WRITE ALL CLOSE STATIONS TO PRINTER
    GOTO 30
C BACK ROUND AND READ ANOTHER
  27 CONTINUE
    ENDIF
    NPLOT=NPLOT+1
C INCREMENT THE NUMBER OF STATIONS ACTUALLY PLOTTED
    XPLOT(NPLOT)=X
    YPLOT(NPLOT)=Y
    CALL PLOT(X,Y,1)
    CALL FACTOR(FACTMK)
    IF (ISYMB .GT. 14) ISYMB=14
C ONLY HAVE 14 SYMBOLS AVAILABLE
    CALL MARKER(ISYMB)
    CALL FACTOR(1.)
    IF (IOPT .LE. 2) GOTO 30
C ONLY WANTED THE MARKER AND THE CIRCLE PERHAPS
    IF (IOPT .EQ. 3 .OR. IOPT .EQ. 5) CALL
      . NUMBER(X+0.07,Y+YBOT,FACTMK*0.07,ASURV,0.,-1)
    IF (IOPT .GE. 4) CALL
      . NUMBER(X+0.07,Y-YBOT,FACTMK*0.07,BA,0.,IPLCE)
    GOTO 30
C PLOTTED AND LABELLED STATION
  50 CONTINUE
C END OF RUN WHEN GET TO HERE SO TIDY UP A LITTLE
    IF (.NOT. SURV) GOTO 54
C NO STATIONS IN AREA
    IF (NSURV .EQ. 1 .AND. SURVEY(1) .EQ. 0) GOTO 54
C HAD DATA WITHOUT SURVEY NUMBERS
    X=0.5
    Y=-1.2
    DO 51 I=1,NSURV
      IMIN=12000
    DO 52 J=1,NSURV
      IF (SURVEY(J) .EQ. 0) GOTO 52
C ALREADY AND PRINTED IN ORDER
    IF (SURVEY(J) .GT. IMIN) GOTO 52

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C ALREADY LOOKING AT AN EARLIER SURVEY
  IMIN=SURVEY(J)
  ISYMB=J
52 CONTINUE
  CALL PLOT(X,Y,1)
  J=ISYMB
  IF (ISYMB .GT. 14) ISYMB=14
  CALL MARKER(ISYMB)
  ASURV=IMIN
  CALL NUMBER(X+0.15,Y-0.07,.14,ASURV,0.,-1)
  SURVEY(J)=0
  X=X+1.0
C AND SPACE ALONG A BIT
  51 CONTINUE
  54 WRITE(7,227) NTOT,NPLOT
  227 FORMAT(I7,' STATIONS ON FILE'/I7,' STATIONS PLOTTED')
C WRITE THE NUMBER OF STATIONS PLOTTED ON LU 7
  WRITE(7,237) NCLOSE
  237 FORMAT(I7,' CLOSE STATIONS NOT PLOTTED')
  WRITE(5,228)
  228 FORMAT(' MORE PLOTS?')
  READ(5,229) AOK
  229 FORMAT(A1)
  IF (AOK .EQ. YES) GOTO 21
  IF (AOK .NE. NO) GOTO 54
  CALL RSTR(2)
  WRITE(6,235)
  235 FORMAT(1X)
  STOP
  END
  SUBROUTINE XFORM(X,XBASE,FACT)
C FIND THE POSITION OF X RELATIVE TO XBASE IN PLOTTER INCHES
C AND RETURNS THE ANSWER IN X!!!!!!!!!!!!
  X=(X-XBASE)*FACT
  RETURN
  END
  SUBROUTINE XLABEL(IX,YMIN,YMAX,FACT,XT,LABEL,LINE,METRES)
  LOGICAL LABEL,LINE,METRES
  REAL TITLE(2)
  DATA TITLE/3HM E,4HKM E/
  CALL PLOT(XT,-0.1,1)
  IF (.NOT. LABEL .AND. .NOT. LINE) GOTO 10
C ONLY WANT PIP
  IIX=IX
  IF (.NOT. METRES) IIX=IIX/1000
  CALL NUMPRT(XT-0.035,-0.15,IIX,270.)
  IF (.NOT. LINE) GOTO 10
  CALL WHERE(XX,YY,AX)
C FIND THE PEN
  CALL MOVREL
  IF (METRES) CALL SYMBOL(XX,YY,0.07,TITLE(1),270.,3)
  IF (.NOT. METRES) CALL SYMBOL(XX,YY,0.07,TITLE(2),270.,4)
  CALL MOVABS
  YY=YMAX
  CALL XFORM(YY,YMIN,FACT)
  CALL PLOT(XT,YY+0.1,1)
  CALL PENDN
  10 CALL PLOT(XT,0.,1)
  RETURN
  END

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SUBROUTINE YLABEL(IY,XMIN,XMAX,FACT,YT,LABEL,LINE,METRES)
LOGICAL LINE,LABEL,METRES
REAL TITLE(2)
DATA TITLE/3HM N,4HKM N/
C USE FOR LABELLING IN SYMBOL
X=XMAX
CALL XFORM(X,XMIN,FACT)
CALL PLOT(X+0.1,YT,1)
IF (.NOT. LABEL .AND. .NOT. LINE) GOTO 10
C ONLY WANTED PIP
IIY=IY
IF (.NOT. METRES) IIY=IIY/1000
CALL NUMPRT(X+0.15,YT-0.035,IIY,0.0)
IF (.NOT. LINE) GOTO 10
CALL WHERE(XX,YY,AY)
C FIND PEN
CALL MOVREL
IF (METRES) CALL SYMBOL(XX,YY,0.07,TITLE(1),0.0,3)
IF (.NOT. METRES) CALL SYMBOL(XX,YY,0.07,TITLE(2),0.,4)
CALL MOVABS
CALL PLOT(-0.1,YT,1)
CALL PENDN
10 CALL PLOT(X,YT,1)
RETURN
END
SUBROUTINE NUMPRT(X,Y,IVAR,ANG)
C TO WRITE THE INTEGER IVAR WITH NO LEADING BLANKS
C STARTING AT X,Y AT AN ANGLE ANG
C A HEIGHT OF 0.07 IS ASSUMED
INTEGER*4 BUFF(3)
ENCODE(BUFF,100) IVAR
100 FORMAT(I10,'&')
K=0
DO 10 I=1,11
CALL ILBYTE(IB,BUFF,I-1)
IF (IB .EQ. 32) GOTO 10
C SKIP SPACES
CALL ISBYTE(IB,BUFF,K)
K=K+1
10 CONTINUE
CALL PWRITE(X,Y,0.07,ANG,BUFF)
RETURN
END

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