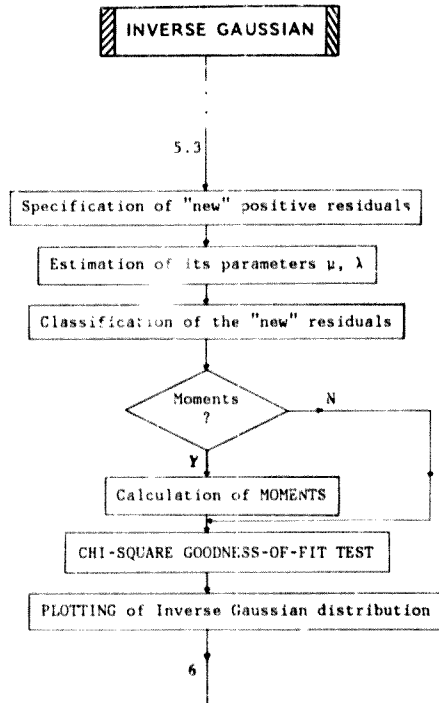




G.5 PRINT OUT OF THE "HI_DI_TEST" COMPUTER PROGRAM

```

18 GOTO 46
19 MASS STORAGE IS "HPB29BY,700,1"
20 RE-STORE "HI_DI_TEST"
37 STOP
46
55 REM-----
64 REM
73 REM      PROGRAM FOR HISTOGRAM AND DISTRIBUTIONS
82 REM      THIS COMPUTER PROGRAM HAS BEEN COMPILED
91 REM      BY
100 REM
109 REM      ALEXANDER ALBANIS
118 REM
127 REM
136 REM      MSc(Eng) - UNIVERSITY OF THE WITWATERSRAND
145 REM
154 REM-----
163 REM
172 REM
181 PRINTER IS 1
190 DIM U(2000),R(2000),Res_1(2000),Res_2(2000),Ep1$(100)(8),Ep2$(100)(8)
199 DIM Res_1_inv(2000),Res_2_inv(2000),Obs_fr_n_draw(2000)
208 DIM New1(2000),Obs_fr_n(500),Nfoen(100)
217 DIM Marlier$(4),Homes(2),Clear$(2),Menus(27)
226 DIM A(30),Th_rsl_fr(500),Th_fr_e(500)
235 DIM Th_fr_e_tel(500),Obs_fr_n_tel(500),Diff(500),Pao(100)
244 DIM Test_x_2_tel(100)
253 PRINTER IS 1
262 INTEGER Point
271 GCLEAR
280 PRINT CHR$(128);
289 OUTPUT 2;"K"
298 REM-----
307 REM
316 REM
325 PRINT USING 334
334 IMAGE /,8X,"
343 PRINT TAB(16);CHR$(131);"      PROGRAM FOR HISTOGRAM AND DISTRIBUTIONS
352 PRINT CHR$(128);
361 PRINT USING 370
370 IMAGE 8X,"
379 PRINT USING 388
388 IMAGE /,16X,"THIS COMPUTER PROGRAM HAS BEEN COMPILED "
397 PRINT USING 406
406 IMAGE 22X,"
415 PRINT TAB(22);CHR$(138);"-----" ALEXANDER ALBANIS <-----"
424 PRINT CHR$(128);
433 PRIN USING 442
442 IMAGE /,16X,"MSc(Eng) - UNIVERSITY OF THE WITWATERSRAND"
451 PRINT USING 460
460 IMAGE /,4X,"      It has been tested on a HP-9816 mini computer",,4X
469 PRINT USING 478      using a double disk drive"
478 IMAGE /,8X,"
487
496 GOSUB Carry_on
505
514 PRINT USING 523
523 IMAGE 10/4X,"      This computer program is running with BASIC 2.0",/
54X,"      and it runs with BASIC 2.0 & BASIC 2.1 with EXTENSIONS"

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```

532      .
541      GOSUB Carry_on
550      .
559      PRINT USING 5A6
568      IMAGE 9/,10X,"Insert the DATA DISK in left disk drive (700,0) ."
577      PRINT USING 5B6
586      IMAGE 7/,9X,"Keep your PROGRAM DISK in right disk drive (700,1) ."
595      .
604      GOSUB Carry_on
613      .
622      PRINT USING 631
631      IMAGE 7/,8X,"To run 'HIST_DIST' program, two data files are required : "
640      PRINT USING 649
649      IMAGE 2/16X," 1. The file of the OBSERVATIONAL RESIDUALS", and"/,2/,8X,
        " 2. The file of the TOTAL NO. OF THE OBS. RESIDUALS ."
658      PRINT USING 667
667      IMAGE 2/16X,"The above files are found from the almost created files of",/
        8X,"the THED program."
676      PRINT USING 685
685      IMAGE 8X,"Each individual set of the 'THED' program includes, to -"/,7,8X
        ",tally 9 data files."
694      PRINT USING 703
703      IMAGE 8X,"You have to select from each set these two files which end"/,8X
        ",in 8 (observational residuals) and 9 (total no. of the ob.",/7,8X,"residuals ."
712      .
721      GOSUB Carry_on
730      .
739      MASS STORAGE IS ":HPB290X,700,0"
748      CAT
757      .
766      .
775      REM-----
784      REM
793      REM
802      REM-----
811      REM          INPUT DATA
820      REM-----
829      .
838      .
847      DISP "How many sets of the observational residuals would you like to use ?
        "1
856      INPUT A#
865      Ob=0
874      Par=0
883      IF A#=1 THEN
892          DISP "Which is the CODE no. of set no. "iA#j" of the "OBSERVATIONAL R
        ESIDUALS" ?"1
901          INPUT Code1#
910          ASSIGN @Res TO Code1#
919          DISP "Which is the CODE no. of set no. "iA#j" of the "NO. OF THE OBS.
        RESIDUALS" ?"1
928          INPUT Code2#
937          ASSIGN @Top TO Code2#
946          ENTER @Top,1jTotal
955          ON END @Res GOTO 991
964          FOR I=1 TO 500
973              ENTER @Res,1jU(I)
982          NEXT I
991          I=Total-1
1000          Ob=Total

```

```

1009   FOR I=1 TO Ob
1010     R(I)=U(I)
1027   NEXT I
1031   ELSE
1045     Met=0
1054     FOR I=1 TO Am
1063       DISP "Which is the CODE no. of set no. "I;" of the ""OBSERVATIONAL
RESIDUALS"" ?";
1072       INPUT Code1$
1081       Met=Met+1
1090       Ep1$(Met)=Code1$
1099       ASSIGN @Res TO Code1$
1108       DISP "Which is the CODE no. of set no. "I;" of the ""NO. OF THE OBS
. RESIDUALS"" ?";
1117       INPUT Code2$
1126       Ep2$(Met)=Code2$
1135       ASSIGN @Top TO Code2$
1144       ENTER @Top,1;Total
1153       ON END @Res GOTO 119B
1162       FOR J=1 TO 500
1171         Par=Par+1
1180         ENTER @Res,J;U(Par)
1189         NEXT J
1198         J=Total-1
1207         Ob=Ob+Total
1216         FOR V=(Ob-Total+1) TO Ob
1225           R(K)=U(K)
1234         NEXT K
1243         Par=Ob
1252       NEXT I
1261     END IF
1270     Ob=Ob
1279     FOR I=1 TO Obs
1288       Res_1(I)=R(I)
1297       IF Res_1(I)>=0 THEN
1306         IF (Res_1(I)+10-INT(Res_1(I)+10))>=.445 THEN
1315           Res(I)=(INT(Res_1(I)+10)+1)/10
1324         ELSE
1333           Res(I)=INT(Res_1(I)+10)/10
1342         END IF
1351       ELSE
1360         IF ABS((Res_1(I)+10)-(INT(Res_1(I)+10)+1))>=.445 THEN
1369           Res(I)=INT(Res_1(I)+10)/10
1378         ELSE
1387           Res(I)=(INT(Res_1(I)+10)+1)/10
1396         END IF
1405       END IF
1414     NEXT I
1423     Xart=0
1432     Saria=0
1441     Fora_n=1
1450     Fora_1=1
1459     Fora=1
1468     Fora_1=1
1477     OUTPUT 2;"K";
1486     '
1495     '
1504   REM-----
1513   REM
1522   REM

```

```

1531 REM-----
1540 REM  DECISION ABOUT USING THE SCREEN AND/OR THE PRINTER FOR THE OUTPUT
1549 REM-----
1556 :
1567 :
1576 OUTPUT 2;"K";
1585 DISP "Will you use PRINTER & SCREEN (=FS) or only SCREEN (=S) ?";
1594 INPUT Answer$
1603 IF Answer$(1,2)="PS" THEN
1612   Pnr=1
1621 ELSE
1630   IF Answer$(1,1)="S" THEN
1639     Pnr=0
1648   GOTO 1765
1657   ELSE
1666     GOTO 1585
1675   END IF
1684 END IF
1693 DISP "Print Printer & address (e.g. 701 etc)";
1702 INPUT Pr
1711 ASSIGN @Prt TO Pr
1720 :
1729 :
1738 REM-----
1747 REM
1756 REM
1765 REM-----
1774 REM          PRINT DATA (OBSERVATIONAL RESIDUALS)
1783 REM-----
1792 :
1801 :
1810 OUTPUT 2;"K";
1819 PRINT USING 1828
1828 IMAGE 7/, "*****
*****",5/
1837 IF Pnr=1 THEN OUTPUT @Prt USING 1828
1846 IF Ans=1 THEN
1855   PRINT USING 1864;Code1$,Code2$
1864   IMAGE 21,"=",21,"The CODE numbers for data files are : ",BA," - ",BA,
1873   IF Pnr=1 THEN OUTPUT @Prt USING 1864;Code1$,Code2$
1882 ELSE
1891   PRINT USING 1900;Ep1$(1),Ep2$(1)
1900   IMAGE 21,"=",21,"The CODE numbers for data files are : ",BA," - ",BA
1909   IF Pnr=1 THEN OUTPUT @Prt USING 1909;Ep1$(1),Ep2$(1)
1918   FOR I=2 TO Met
1927     PRINT USING 1936;Ep1$(I),Ep2$(I)
1936     IMAGE 44x,BA," - ",BA
1945     IF Pnr=1 THEN OUTPUT @Prt USING 1945;Ep1$(I),Ep2$(I)
1954   NEXT I
1963 END IF
1972 PRINT USING 1981
1981 IMAGE 3/,25x,"OBSERVATIONAL RESIDUALS",/,25x,"-----",/
1990 IF Pnr=1 THEN OUTPUT @Prt USING 1981
1999 FOR I=1 TO Obs
2008   PRINT USING 2017;Res(I)
2017   IMAGE 34x,57.0
2026   IF Pnr=1 THEN OUTPUT @Prt USING 2017;Res(I)
2035 NEXT I
2044 IF Obs<100 THEN

```

```

2053 PRINT USING 2062;Obs
2062 IMAGE 4/,4X,"TOTAL NO. OF OBS. RESIDUALS = ",2D,/,4X,"-----"
2071 IF Pnr=1 THEN OUTPUT @Prt USING 2062;Obs
2080 ELSE
2089 IF Obs>=1000 AND Obs<1000 THEN
2098 PRINT USING 2107;Obs
2107 IMAGE 4/,4X,"TOTAL NO. OF OBS. RESIDUALS = ",3D,/,4X,"-----"
2116 IF Pnr=1 THEN OUTPUT @Prt USING 2107;Obs
2125 ELSE
2134 PRINT USING 2143;Obs
2143 IMAGE 4/,4X,"TOTAL NO. OF OBS. RESIDUALS = ",4D,/,4X,"-----"
2152 IF Pnr=1 THEN OUTPUT @Prt USING 2143;Obs
2161 END IF
2170 END IF
2178 PRINT USING 2188
2188 IMAGE 5/
2197
2206
2215 DISP "What should the class interval be ?";
2224 INPUT C1
2233
2242
2251 REM-----
2260 REM
2269 REM
2278 REM-----
2287 REM CLASSIFICATION OF THE OBSERVATIONAL RESIDUALS
2296 REM-----
2305
2314
2323 PRINT USING 2332
2332 IMAGE 7/,13X," CLASS",13X,"CLASSIFICATION OF",8X,"FREQUENCY OF"
2341 IF Pnr=1 THEN OUTPUT @Prt USING 2332
2350 PRINT USING 2359
2359 IMAGE 91,"INTERVALS (sec)",91,"OBS. RESIDUALS",9X,"OBS. RESIDUALS",/,6X,"-----",6X,"-----"
2368 IF Pnr=1 THEN OUTPUT @Prt USING 2359
2377 Mn=Res(1)
2386 FOR I=2 TO Obs
2395 IF Res(I)>Mn THEN
2404 Mn=Res(I)
2413 ELSE
2422 GOTO 2440
2431 END IF
2440 NEXT I
2449 Mn=Res(1)
2458 FOR I=2 TO Obs
2467 IF Res(I)<Mn THEN
2476 Mn=Res(I)
2485 ELSE
2494 GOTO 2512
2503 END IF
2512 NEXT I
2521 FOR J=-C1/2 TO -100 STEP -C1
2530 IF Mn>=-.01 THEN
2539 I1=J
2548 GOTO 2575

```

```

2557     END IF
2566 NEXT I
2575 FOR I=C1/2 TO 100 STEP C1
2584     IF M<=I-.01 THEN
2593         I2=I
2602         GOTO 2629
2611     END IF
2620 NEXT I
2629 A1=I1
2638 A2=I2
2647 Ksf=0
2656 Noin1=0
2665 Noinr=0
2674 As=0
2683 Sall=0
2692 FOR I=11 TO 12 STEP C1
2701     IF I>12-.01 THEN
2710         GOTO 3097
2719     END IF
2728     IF I<0 THEN
2737         Noin1=Noin1+1
2746     ELSE
2755         Noinr=Noinr+1
2764     END IF
2773     PRINT USING 2782;1,1+C1
2782     IMAGE /,6X,SZ,DD," - ",X,S?,DD,"(-)"
2791     IF Pnr=1 THEN OUTPUT @Prt USING 2782;1,1+C1
2800     G=0
2809     FOR J=1 TO Dss
2818         IF Res(J)<(I+C1-.01) AND Res(J)>I-.01 THEN
2827             G=G+1
2836             New1(G)=Res(J)
2845         ELSE
2854             GOTO 2872
2863         END IF
2872 NEXT J
2881     Ksf=Ksf+1
2890     Myoen(Ksf)=G
2899     As=As+1
2908     Obs_fr_n(As)=G
2917     Obs_fr_n,daw(As)=Obs_fr_n(As)
2926     Sall=Sall+G
2935     IF G=0 THEN
2944         PRINT USING 2953;Obs_fr_n(As)
2953         IMAGE 62X,3D
2962         IF Pnr=1 THEN OUTPUT @Prt USING 2953;Obs_fr_n(As)
2971     ELSE
2980         FOR L=1 TO G
2989             IF L>G THEN
2998                 PRINT USING 3007;New1(L)
3007                 IMAGE 30X,SZ,D
3016                 IF Pnr=1 THEN OUTPUT @Prt USING 3007;New1(L)
3025             ELSE
3034                 PRINT USING 3043;New1(L),Obs_fr_n(As)
3043                 IMAGE 30X,SZ,D,20X,3D
3052                 IF Pnr=1 THEN OUTPUT @Prt USING 3043;New1(L),Obs_fr_n(As)
3061             END IF
3070         NEXT L
3079     END IF
3088 NEXT I

```

```

3097 IF Sml1<100 THEN
3106 PRINT USING 3115;Sml1
3115 IMAGE 7,56X,"-----",7,63X,2D
3124 IF Pnr=1 THEN OUTPUT @Prt USING 3115;Sml1
3133 ELSE
3142 IF Sml1>=100 AND Sml1<1000 THEN
3151 PRINT USING 3160;Sml1
3160 IMAGE 7,56X,"-----",7,62X,3D
3169 IF Pnr=1 THEN OUTPUT @Prt USING 3160;Sml1
3178 ELSE
3187 PRINT USING 3196;Sml1
3196 IMAGE 7,56X,"-----",7,61X,4D
3205 IF Pnr=1 THEN OUTPUT @Prt USING 3196;Sml1
3214 END IF
3223 END IF
3232 Max_mfoen=Mfoen(I)
3241 FOR I=2 TO Kef
3250 IF Mfoen(I)>Max_mfoen THEN
3259 Max_mfoen=Mfoen(I)
3268 ELSE
3277 GOTD 3295
3286 END IF
3295 NEXT I
3304
3313 IF Answer$(1,1)="" THEN
3322 PRINT USING 3331
3331 IMAGE 47,"-----"
3340 IF Pnr=1 THEN OUTPUT @Prt USING 3331
3349 END IF
3358
3367 GOSUB Carry_on
3376
3385
3394 REM-----
3403 REM
3412 REM
3421 REM-----
3430 REM M E N U
3439 REM-----
3448
3457
3466 Clear$=CHR$(255)&CHR$(75)
3475 Home$=CHR$(255)&CHR$(84)
3484 Marker$=" "&CHR$(8)&CHR$(8)
3493 PRINTER: IS 1
3502 GRAPHICS OFF
3511 CONTROL 2,1,0
3520 CONTROL 1,4,0
3529 OUTPUT 2;Clear$;
3538 STATUS 1,9;Screen
3547 PRINT USING 3556
3556 @IMAGE 5/
3565 PRINT USING 3574
3574 IMAGE 21X,"-----"
3583 PRINT TAB(22);CHR$(131); M E N U
3592 PRINT CHR$(128);
3601 PRINT USING 3610
3610 IMAGE 21X,"-----",/
3619 Point=1;

```

```

3628 PRINT TAB(22); "1. NORMAL (GAUSSIAN) DISTRIBUTION"
3637 PRINT TAB(22); "2. TRUNCATED NORMAL DISTRIBUTION"
3646 PRINT TAB(22); "3. INVERSE GAUSSIAN DISTRIBUTION"
3655 PRINT TAB(17,Point);Marker#;
3664 ON KBD GOTO Select Ley
3673 ON KNOB .10 GOTO Move_pointer
3682 Spin:GOTO Spin
3691 '
3700 Move_pointer:
3709 IF KNOB=0 THEN
3718 Point=Point+1
3727 ELSE
3736 Point=Point-1
3745 END IF
3754 IF Point<1 THEN Point=11
3763 IF Point>13 THEN Point=13
3772 OUTPUT 2;"Homes";
3781 PRINT "
3790 PRINT TAB(17,Point);Marker#;
3799 GOTO Spin
3808 '
3817 OFF 1BD
3826 Select_key:
3835 OUTPUT 2;"K";
3844 SELECT Point
3853 Me=0
3862 CASE 9*2
3871 PRINT USING 3880
3880 IMAGE 9;.1BX;"....."/.1BX;"",36X;"",
3889 PRINT USING 3898
3898 IMAGE 18X;"",3X,"NORMAL (GAUSSIAN) DISTRIBUTION",3X;"",7.1BX;"",.....
....."/.1BX;"",36X;"",
3907 Menu8="NORMAL"
3916 Me=1
3925 Saria=Saria+1
3934 WAIT 1
3943 OUTPUT 2;"K";
3952 CASE 10*2
3961 Me=2
3970 Saria=Saria+1
3979 WAIT 1
3988 '
3997 GOSUB Conf_lev
4006 '
4015 CASE 11*2
4024 PRINT USING 4033
4033 IMAGE 9;.17X;"....."/.17X;"",37X;"",
4042 PRINT USING 4051
4051 IMAGE 17X;"",3X,"INVERSE GAUSSIAN DISTRIBUTION",3X;"",7.17X;"",.....
....."/.17X;"",37X;"",
4060 Menu8="INVERSE GAUSSIAN"
4069 Me=3
4078 Saria=Saria+1
4087 WAIT 1
4096 END SELECT
4105 '
4114 REM-----
4123 IF Me=1 THEN GOTO 4231
4132 IF Me=2 THEN GOTO 5096
4141 IF Me=3 THEN GOTO 11143

```

```

4158 REM-----
4159 :
4160 :
4177 REM-----
4186 REM
4195 REM
4204 REM
4213 REM
4222 REM-----
4231 REM          NORMAL - GAUSSIAN - DISTRIBUTION
4240 REM-----
4249 :
4258 :
4267 Sars=Sars+1
4276 :
4285 REM-----
4294 :
4303 REM-----
4312 REM  Estimation of the Normal distribution parameters
4321 REM-----
4330 :
4339 :
4348 Ssum=0
4357 FOR I=1 TO Obs
4366   Ssum=Ssum+Res_1(I)
4375 NEXT I
4384 Mo_nor=Ssum/Obs
4393 St=0
4402 FOR I=1 TO Obs
4411   St=St+(Res_1(I)-Mo_nor)^2
4420 NEXT I
4429 St_dev=sqr(St/Obs)
4438 St_dev_o_mean=St_dev/sqr(Obs)
4447 :
4456 :
4465 REM----- M O M E N T S -----
4474 :
4483 GOSUB Eratin
4492 :
4501 Sec_mom_nor=Mo_2-Mo_nor^2
4510 Third_mom_nor=(Mo_3)-(3*Mo_2*Mo_nor)+(2*Mo_nor^3)
4519 Fourth_mom_nor=(Mo_4)-(4*Mo_3*Mo_nor)+(6*Mo_2*Mo_nor^2)-(3*Mo_nor^4)
4528 Act_skew_nor=Third_mom_nor/sqr(Sec_mom_nor^3)
4537 Act_kurt_nor=Fourth_mom_nor/Sec_mom_nor^2
4546 PRINT USING 4555
4555 IMAGE 5/,29;,"-----",/,29;,"NORMAL DISTRIBUTION",/,29;,"=
-----",/
4564 IF Pnr=1 THEN OUTPUT 0Prt USING 4555
4573 IF Answer0(1,2)="PS" THEN
4582   PRINT USING 4591
4591   IMAGE 3/,22X;"THEORETICAL coefficient of SKEWNESS = 0",/,22X;"THEORETIC
AL coefficient of KURTOSIS = 3"
4600   IF Pnr=1 THEN OUTPUT 0Prt USING 4591
4609   ELSE   ( ( Answer0(1,1)="S" )
4618     PRINT TAB(23);CHR0(130);"THEORETICAL coefficient of SKEWNESS = 0"
4627     PRINT USING 4636
4636     IMAGE /
4645     PRINT TAB(23);CHR0(130);"THEORETICAL coefficient of KURTOSIS = 3"
4654     PRINT CHR0(128);
4663   END IF

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```

4672 PRINT USING 4: Act_skw_nor,Act_kurt_nor
4681 IMAGE /,22X, "AL coefficient of SKEWNESS = ",S2.DD,"ACTUAL coef
4690 IF Pnr=1 THEN OUTPUT @Prt USING 46B1;Act_skw_nor,Act_kurt_nor
4699 '
4700 GOSUB Carry_on
4717 '
4726 REM:
4735 '
4744 '
4753 GOSUB Choice
4762 '
4771 GOSUB T_x_21
4780 '
4789 PRINT USING 479B;A1
4798 IMAGE /,5X,"-30",3X," - ",X,S2.DD,"(-"
4807 IF Pnr=1 THEN OUTPUT @Prt USING 479B;A1
4816 Categ=Categ+1
4825 Area_1=0
4834 FOR I=-31 TO A1 STEP D:
4843 Fx_1=1/(St_dev_o*SDR(2+FI))*EXP(-.5*((I-Mo_nor)/St_dev_o)^2)
4852 Area_1=Area_1+Fx_1*Dx
4861 NEXT I
4870 Area_2=0
4879 FOR J=-31 TO -50 STEP D:
4888 Fx_2=1/(St_dev_o*SDR(2+FI))*EXP(-.5*((J-Mo_nor)/St_dev_o)^2)
4897 Area_2=Area_2+Fx_2*Dx
4906 NEXT J
4915 Area=Area_1+Area_2
4924 Aarea=Area
4933 '
4942 GOTO Eap
4951 '
4960 REM " X X
4969 Gam=A1
4978 FOR I=A1 TO A2 STEP C1
4987 IF I=A2-.01 THEN
4996 GOTO 5194
5005 END IF
5014 Categ=Categ+1
5023 PRINT USING 5032;I,1+C1
5032 IMAGE /,5X,S2.DD," - ",X,S2.DD,"(-"
5041 IF Pnr=1 THEN OUTPUT @Prt USING 5032;I,1+C1
5050 Gam=Gam+C1
5059 Area_1=0
5068 FOR K=-30 TO Gam STEP Dx
5077 Fx_1=1/(St_dev_o*SDR(2+PI))*EXP(-.5*((K-Mo_nor)/St_dev_o)^2)
5086 Area_1=Area_1+Fx_1*Dx
5095 NEXT K
5104 Area=Area_1+Aarea
5113 Aarea=Area+Area
5122 '
5131 GOSUB Topographos_1
5140 '
5149 GOSUB Topographos_2
5158 '
5167 GOSUB Topographos_3
5176 '
5185 NEXT I
5194 REM " X X

```

```

5283 PRINT USING 5212:A2
5212 IMAGE /,5X,SZ,00,X," - ",X,"+5 "
5221 IF Pnr=1 THEN OUTPUT #Prt USING 5212:A2
5230 Categ=Categ+1
5239 Area_1=0
5248 FOR I=-5 TO 5 STEP Dx
5257   Fx_1=1/(St_dev_o*SQR(2*PI))*EXP(-.5*((I-No_nor)/St_dev_o)^2)
5266   Area_1=Area_1+Fx_1*Dx
5275 NEXT I
5284 Area=Area_1-Aarea
5293
5302 GOSUB Emp
5311
5320 GOSUB T_x_22
5329
5338 REM: PLOT NORMAL
5347
5356 GOSUB Graph
5365
5374 GOSUB Ar_xise
5383
5392 T=0
5401 Ft=0
5410 Fx=0
5419 Y=0
5428 IF Ap0(1,1)=""S" THEN
5437   LINE TYPE 0
5446 END IF
5455 T=0
5464 Ft_mean=1/(St_dev_o*SQR(2*PI))
5473
5482 Scale_nor=Th_fr_e_max/Ft_mean
5491
5500 FOR I=-(Noin)*C1*100 TO (Noinr+1)*C1*100 STEP Bnne
5509   T=((I/100)-No_nor)/St_dev_o
5518   Ft=1/(St_dev_o*SQR(2*PI))*EXP(-T^2/2)*Scale_nor
5527   Y=Ft
5536   IF I=-(Noin)*C1*100 THEN
5545     MOVE I,Y
5554     PEN 2 Red pen
5563   ELSE
5572     DRAW I,Y
5581   END IF
5590 NEXT I
5599 LDIR 0
5608 IF Ap0(1,1)=""S" THEN
5617   VIEWPORT 0,200,0,200
5626   WINDOW 0,200,0,200
5635   MOVE 3,100
5644   IDRAW 0,0
5653   LORG 2
5662   MOVE 10,100
5671   CSIZE 3.5,4
5680   LINE TYPE 1,5
5689   LABEL " Normal dist. "
5698   ELSE ( IF Ap0(1,2)=""PL" )
5707   VIEWPORT 3,134,9,86
5716   WINDOW 0,100,0,100
5725   MOVE 2,95 2,95.5
5734   IDRAW 2,0

```

```

5743      LOGO 2
5752      MOVE 5.95 : 5.95
5761      CSIZE 1.5,,5
5770      LABEL " : Normal dist. "
5779      PENH 0
5788      PENUP
5797      END IF
5806      :
5815      :
5824      Tm=0
5833      GOTO 14491
5842      :
5851      :
5860      REM-----
5869      REM
5878      REM
5887      REM-----
5896      REM TRUNCATED NORMAL DISTRIBUTION
5905      REM -----
5914      :
5923      :
5932      Series=Series+1
5941      :
5950      REM
5959      IF ABS(Tim_1*100-(INT(Tim_1*100)+1))>=.445 THEN
5968      Im_1=INT(Tim_1*100)/100
5977      ELSE
5986      Im_1=(INT(Tim_1*100)+1)/100
5995      END IF
6004      IF (Tim_r*100-INT(Tim_r*100))>=.445 THEN
6013      Im_r=(INT(Tim_r*100)+1)/100
6022      ELSE
6031      Im_r=INT(Tim_r*100)/100
6040      END IF
6049      :
6058      :
6067      REM:----- M O M E N T S -----
6076      :
6085      GOSUB Erotiss
6094      :
6103      Sec_mom_tr=Mo_2-Mo_tr^2
6112      Third_mom_tr=(Mo_3)-(3*Mo_2*Mo_tr)+(2*Mo_tr^3)
6121      Fourth_mom_tr=(Mo_4)-(4*Mo_3*Mo_tr)+(6*Mo_2*Mo_tr^2)-(3*Mo_tr^4)
6130      Act_skew_tr=Th_d_mom_tr/SQR(Sec_mom_tr^3)
6139      Act_kurt_tr=Fourth_mom_tr/Sec_mom_tr^2
6148      :
6157      Th_skew_tr=0
6166      IF Lab=1 THEN
6175      Th_kurt_tr_1=5.200
6184      ELSE
6193      IF Lab=2 THEN
6202      Th_kurt_tr_1=4.135
6211      ELSE ( Lab=3 )
6220      Th_kurt_tr_1=3.510
6229      END IF
6238      END IF
6247      Th_kurt_tr=INT(Th_kurt_tr_1*1000)/1000
6256      :
6265      IF Lab=1 THEN
6274      PRINT USING 6203

```

```

6293 IMAGE 5/,20X,"=====
6292 IF Pnr=1 THEN OUTPUT @Prt USING 6293
6301 PRINT USING 6310
6310 IMAGE 20X,"TRUNCATED NORMAL DISTRIBUTION ( 95% )",/,20X,"=====
        =====",/
6319 IF Pnr=1 THEN OUTPUT @Prt USING 6310
6320 ELSE
6337 IF Lab=2 THEN
6346 PRINT USING 6355
6355 IMAGE 5/,18X,"=====
6354 IF Pnr=1 THEN OUTPUT @Prt USING 6355
6373 PRINT USING 6382
6382 IMAGE 18X,"TRUNCATED NORMAL DISTRIBUTION ( 97.5% )",/,18X,"=====
        =====",/
6391 IF Pnr=1 THEN OUTPUT @Prt USING 6382
6400 ELSE ( Lab=3 )
6409 PRINT USING 6418
6418 IMAGE 5/,20X,"=====
6427 PRINT USING 6436
6435 IMAGE 20X,"TRUNCATED NORMAL DISTRIBUTION ( 99% )",/,20X,"=====
        =====",/
6445 IF Pnr=1 THEN OUTPUT @Prt USING 6436
6454 END IF
6463 END IF
6472 IF Answer$(1,2)="PS" THEN
6481 PRINT USING 6490;th_kurt_tr
6490 IMAGE 3/,20X,"THEORETICAL coefficient of SKEWNESS = 0",2/,20X,"THEORETIC
AL coefficient of KURTOSIS = ",D,3D
6499 IF Pnr=1 THEN OUTPUT @Prt USING 6490;th_kurt_tr
6508 ELSE ( Answer$(1,1)="S" )
6517 PRINT TAB(21);CHR$(130);"THEORETICAL coefficient of SKEWNESS = ";th_skew
_tr
6526 PRINT USING 6535
6535 IMAGE /
6544 PRINT TAB(21);CHR$(130);"THEORETICAL coefficient of KURTOSIS = ";th_kurt
_tr
6553 PRINT CHR$(128);
6562 END IF
6571 PRINT USING 6580;Act_skew_tr,Act_kurt_tr
6580 IMAGE 3/,22X,"ACTUAL coefficient of SKEWNESS = ",S2,3D,2/,22X,"ACTUAL coef
ficient of KURTOSIS = ",S2,3D
6589 IF Pnr=1 THEN OUTPUT @Prt USING 6580;Act_skew_tr,Act_kurt_tr
6599
6607 GOSUB Carry_on
6616
6625 REM:=====
6634
6643
6652 GOSUB Choice
6661
6670 GOSUB T_x_21
6679
6688 IF T1m_1<A1 THEN
6697 W1=A1
6706 GOTO 6832
6715 ELSE
6724 R1=A1
6733 Dr1=ABS(ABS(R1)-ABS(T1m_1))
6742 FOR I=1 TO 100
6751 IF Dr1<C1 THEN

```

```

6760      W1=R1
6765      GOTO 6832
6778      ELSE
6787      R1=R1+C1
6796      Dr1=ABS(ArS(R1)-ABS(Tim_1))
6805      END IF
6814      NEXT I
6823      END IF
6832      IF Tim_r>A2 THEN
6841      #2=A2
6850      GOTO 6976
6859      ELSE
6868      R2=A2
6877      Dr2=ABS(R2-ABS(Tim_r))
6886      FOR I=1 TO 100
6895      IF Dr2<C1 THEN
6904      W2=B2
6913      GOTO 6976
6922      ELSE
6931      R2=R2-C1
6940      Dr2=ABS(R2-ABS(Tim_r))
6949      END IF
6958      NEXT I
6967      END IF
6976      Sur2=1m_r
6985      REM:
6994      REM:
7003      :
7012      :
7021      I_dph_ba=1/Dph_ba
7030      :
7039      :
7048      IF Tim_1<=W1 THEN
7057      Sur1=W1
7066      IF Tim_1=W1-.005 AND Tim_1<=W1 THEN
7075      PRINT USING 7084:Im_1,W1
7084      IMAGE /,5X,"<<","I,SZ,DD," - ",I,SZ,DD,"(-)"
7093      IF Ppr=1 THEN OUTPUT @Prt USING 7084:Im_1,W1
7102      GOTO 7147
7111      END IF
7120      PRINT USING 7129:Im_1,W1
7129      IMAGE /,5X,SZ,DD,X," - ",X,SZ,DD,"(-)"
7139      IF Ppr=1 THEN OUTPUT @Prt USING 7129:Im_1,W1
7147      Categ=Categ+1
7156      Area_1=0
7165      FOR I=-10 TO W1 STEP Dx
7174      Fx_1=((1/St_dev_tr)*(1/SQR(2*P1)))*EXP(-.5*((I-Mo_tr)/St_dev_tr)^2)*I_dp
h_ba
7183      Area_1=Area_1+Fx_1*Dx
7192      NEXT I
7201      Area_2=0
7210      FOR I=-10 TO Tim_1 STEP Dx
7219      Fx_2=((1/St_dev_tr)*(1/SQR(2*P1)))*EXP(-.5*((I-Mo_tr)/St_dev_tr)^2)*I_dp
h_ba
7228      Area_2=Area_2+Fx_2*Dx
7237      NEXT I
7246      Area=Area_1+Area_2
7255      Area=Area
7264
7273      GOSUB 7273:graphos_1

```

```

7282
7291 FOR M=1 TO Obs
7300 IF Res(M)<(W1-.001) AND Res(M)>=(Tim.1-.001) THEN
7309 G=G+1
7318 New1(G)=Res(M)
7327 ELSE
7336 GOTO 7354
7345 END IF
7354 NEXT M
7363
7372 GOSUB Topographos.3
7381
7390 REM X,Z,X
7399 IF Tim.r>W2 THEN
7408 Gaa=W1
7417 FOR I=W1 TO W2 STEP C1
7426 IF I-W2<-.01 THEN
7435 GOTO 7633
7444 END IF
7453 Categ=Categ+1
7462 PRINT USING 7471;I,I+C1
7471 IMAGE /,X,SZ,DD,X," - ",X,SZ,DD,X,"->"
7480 IF Pnr=1 THEN OUTPUT @Prt USING 7471;I,I+C1
7489 Gaa=Gaa+C1
7498 Area=1#0
7507 FOR k=Tim.1 TO Gaa STEP D1
7516 Fx.1=((1/St_dev_tr)*((1/SQR(2*PI)))*EXP(-.5*((I-Mo_tr)/St_dev_tr)^2))
7525 Area.1=Area.1+Fx.1*D1
7534 NEXT k
7543 Area=Area.1+Area
7552 Aarea=Aarea+Area
7561
7570 GOSUB Topographos.1
7579
7588 GOSUB Topographos.2
7597
7606 GOSUB Topographos.3
7615
7624 NEXT I
7633 REM
7642 IF Tim.r=W2 AND Tim.r<W2+.005 THEN
7651 PRINT USING 7660;W2,Im_r
7660 IMAGE /,X,SZ,DD,X," - ",X,SZ,DD,X,"->"
7669 IF Pnr=1 THEN OUTPUT @Prt USING 7660;W2,Im_r
7678 GOTO 7723
7687 END IF
7696 PRINT USING 7705;W2,Im_r
7705 IMAGE /,X,SZ,DD,X," - ",X,SZ,DD
7714 IF Pnr=1 THEN OUTPUT @Prt USING 7705;W2,Im_r
7723 Categ=Categ+1
7732 Area.1=0
7741 FOR I=W2 TO Tim.r STEP Dx
7750 Fx.1=((1/St_dev_tr)*((1/SQR(2*PI)))*EXP(-.5*((I-Mo_tr)/St_dev_tr)^2))
7759 Area.1=Area.1+Fx.1*Dx
7768 NEXT I
7777 Area=Area.1
7786
7795 GOSUB Topographos.1

```

```

7804      '
7813      FOR M=1 TO Obs
7822      IF Res(M)=Tim_r AND Res(M)=(W2-.01) THEN
7831      CGO+1
7840      New1(B)=Res(M)
7849      ELSE
7858      GOTO 7876
7867      END IF
7876      NEXT M
7885      '
7894      GOSUB Topographos_3
7903      '
7912      ELSE      ' ( IF Tim_r<W2 )
7921      Gam=W1
7930      FOR I=W1 TO W2-C1 STEP C1
7939      IF I>(W2-C1)-.01 THEN
7948      GOTO 8146
7957      END IF
7966      Categ=Categ+1
7975      PRINT USING 7984;I,I+C1
7984      IMAGE /,5X,SZ,DD," " - ",X,SZ,DD,"(-)"
7993      IF Pnr=1 THEN OUTPUT @Prt USING 7984;I,I+C1
8002      Gam=Gam+C1
8011      Area_1=0
8020      FOR K=Tim_1 TO Gam STEP D
8029      Fx_1=(1/St_dev_tr)*(1/SQR(2*PI))*EXP(-.5*((K-Mo_tr)/St_dev_tr)^2)*
1_dph_ba
8038      Area_1=Area_1+Fx_1*Dx
8047      NEXT K
8056      Area=Area_1+Area
8065      Area=Area+Area
8074      '
8083      COSUB Topographos_1
8092      '
8101      GOSUB Topographos_2
8110      '
8119      COSUB Topographos_3
8128      '
8137      NEXT I
8146      REP      '
8155      IF Tim_r>W2-C1 AND Tim_r<(W2-C1)+.005 THEN
8164      PRINT USING 8173;W2-C1,Im_r
8173      IMAGE /,5X,SZ,DD,X," " - ",X,SZ,DD,X,"(-)"
8182      IF Pnr=1 THEN OUTPUT @Prt USING 8173;W2-C1,Im_r
8191      GOTO 8236
8200      END IF
8209      PRINT USING 8218;W2-C1,Im_r
8218      IMAGE /,5X,SZ,DD,X," " - ",X,SZ,DD
8227      IF Pnr=1 THEN OUTPUT @Prt USING 8218;W2-C1,Im_r
8236      Categ=Categ+1
8245      Area_1=0
8254      FOR I=W2-C1 TO Tim_r STEP D
8263      Fx_1=(1/St_dev_tr)*(1/SQR(2*PI))*EXP(-.5*((I-Mo_tr)/St_dev_tr)^2)*1_
dph_ba
8272      Area_1=Area_1+Fx_1*Dx
8281      NEXT I
8290      Area=Area_1
8299      '
8308      GOSUB Topographos_1
8317      '

```

```

0326     FOR M=1 TO Obs
0335         IF Res(M)<Tim_r AND Res(M)>=(W2-C1-.01) THEN
0344             G=0+1
0353             New1(G)=Res(M)
0362         ELSE
0371             GOTO 0309
0380         END IF
0389     NEXT M
0398
0407     GOSUB Topographos_3
0416
0425     END IF
0434     ELSE IF (IF Tim_1>W1)
0443     Sur1=W1+C1
0452     IF Tim_1>(W1+C1)-.005 AND Tim_1<=W1+C1 THEN
0461         PRINT USING 0470;Tim_1,W1+C1
0470         IMAGE /,5X," ",X,SZ.DD," - ",X,SZ.DD," (-)"
0479         IF Pnr=1 THEN OUTPUT @Prt USING 0470;Tim_1,W1+C1
0488         GOTO 0533
0497     END IF
0506     PRINT USING 0515;Tim_1,W1+C1
0515     IMAGE /,5X,SZ.DD,X," - ",X,SZ.DD," (-)"
0524     IF Pnr=1 THEN OUTPUT @Prt USING 0515;Tim_1,W1+C1
0533     Categ=Categ+1
0542     Area_1=0
0551     FOR I=-10 TO (W1+C1) STEP Dx
0560         Fx_1=(1/St_dev_tr)*1/SQR(2*PI)*EXP(-.5*((I-Mo_tr)/St_dev_tr)^2)*I_dp
0569         Area_1=Area_1+Fx_1*Dx
0578     NEXT I
0587     Area_2=0
0596     FOR I=-10 TO Tim_1 STEP Dx
0605         Fx_2=(1/St_dev_tr)*1/SQR(2*PI)*EXP(-.5*((I-Mo_tr)/St_dev_tr)^2)*I_dp
0614         Area_2=Area_2+Fx_2*Dx
0623     NEXT I
0632     Area=Area_1+Area_2
0641     Area=Area
0650
0659     GOSUB Topographos_1
0668
0677     FOR M=1 TO Obs
0686         IF Res(M)<(W1+C1-.301) AND Res(M)>=(Tim_1-.001) THEN
0695             G=0+1
0704             New1(G)=Res(M)
0713         ELSE
0722             GOTO 0740
0731         END IF
0740     NEXT M
0749
0758     GOSUB Topographos_3
0767
0776     REM " "
0785     IF Tim_r>W2 THEN
0794         Gam=W1+C1
0803         FOR I=W1+C1 TO W2 STEP C1
0812             IF I=W2-.01 THEN
0821                 GOTO 0819
0830             END IF
0839             Categ=Categ+1

```

```

0840 PRINT USING 8057;I,I+C1
0847 IMAGE /,5X,SZ,DD," - ",X,SZ,DD,"(-)"
0848 IF Pwr=1 THEN OUTPUT @Prt USING 8057;I,I+C1
0849 Gam=Gam+C1
0850 Area_1=0
0851 FOR K=1 TO Gam STEP Dx
0852   Fx_1=(1/St_dev_tr)*((1/SDR(2*P1))*EXP(-.5*((K-Mo_tr)/St_dev_tr)^2)+
0853     I_dph_da
0854   Area_1=Area_1+Fx_1*Dx
0855 NEXT K
0856 Area=Area_1-Area
0857 Area=Area+Area
0858
0859 GOSUB Topographos_1
0860
0861 GOSUB Topographos_2
0862
0863 GOSUB Topographos_3
0864
0865 NEXT I
0866 REM
0867 IF Tim_r=W2 AND Tim_r-W2+.005 THEN
0868   PRINT USING 9046;W2,Im_r
0869   IMAGE /,5X,SZ,DD,X," - ",X,SZ,DD,X,"(-)"
0870   IF Pwr=1 THEN OUTPUT @Prt USING 9046;W2,Im_r
0871   GOTO 9109
0872 END IF
0873 PRINT USING 9091;W2,Im_r
0874 IMAGE /,5X,SZ,DD,X," - ",X,SZ,DD
0875 IF Pwr=1 THEN OUTPUT @Prt USING 9091;W2,Im_r
0876 Categ=Categ+1
0877 Area_1=0
0878 FOR I=W2 TO Tim_r STEP Dx
0879   Fx_1=(1/St_dev_tr)*((1/SDR(2*P1))*EXP(-.5*((I-Mo_tr)/St_dev_tr)^2)+I_
0880     dph_da
0881   Area_1=Area_1+Fx_1*Dx
0882 NEXT I
0883 Area=Area_1
0884
0885 GOSUB Topographos_1
0886
0887 FOR M=1 TO Obs
0888   IF Res(M)<Tim_r AND Res(M)>=(W2-.01) THEN
0889     B=B+1
0890     New1(B)=Res(M)
0891   ELSE
0892     GOTO 9262
0893   END IF
0894 NEXT M
0895
0896 GOSUB Topographos_3
0897
0898 IF (IF Tim_r=W2)
0899   Gam=W1+C1
0900   FOR I=W1+C1 TO W2-C1 STEP C1
0901     IF I-(W2-C1)>.41 THEN
0902       GOTO 9532
0903     END IF
0904     Categ=Categ+1
0905   PRINT USING 9370;I,I+C1

```

```

9370 IMAGE /,5X,SZ,DD," - ",X,SZ,DD,"(-)"
9379 IF Pnr=1 THEN OUTPUT @Prt USING 93.0:1,1+C1
9388 Gaa=Gaa+C1
9397 Area_1=0
9406 FOR K=Tim_1 TO Cam STEP Dx
9415 Fx_1=(1/St_dev_tr)*(1/SQR(2*PI))*EXP(-.5*(K-Mo_tr)/St_dev_tr)^2)*
I_dph_da
9424 Area_1=Area_1+Fx_1*Dx
9433 NEXT K
9442 Area=Area_1-Area
9451 Area=Area+Area
9460
9469 GOSUB Topographos_1
9478
9487 GOSUB Topographos_2
9496
9505 GOSUB Topographos_3
9514
9523 NEXT I
9532 REM
9541 IF Tim_r=W2-C1 AND Tim_r*(W2-C1)*.005 THEN
9550 PRINT USING 9559;W2-C1,Im_r
9559 IMAGE /,5X,SZ,DD,X," - ",X,SZ,DD,X,"(-)"
9568 IF Pnr=1 THEN OUTPUT @Prt USING 9568;W2-C1,Im_r
9577 GOTO 9622
9586 END IF
9595 PRINT USING 9604;W2-C1,Im_r
9604 IMAGE /,5X,SZ,DD,X," - ",X,SZ,DD
9613 IF Pnr=1 THEN OUTPUT @Prt USING 9604;W2-C1,Im_r
9622 Categ=Categ+1
9631 Area_1=0
9640 FOR I=W2-C1 TO Tim_r STEP Dx
9649 Fx_1=(1/St_dev_tr)*(1/SQR(2*PI))*EXP(-.5*(I-Mo_tr)/St_dev_tr)^2)*I_
cph_da
9658 Area_1=Area_1+Fx_1*Dx
9667 NEXT I
9676 Area=Area_1
9685
9694 GOSUB Topographos_1
9703
9712 FOR M=1 TO Obs
9721 IF Res(M)<Tim_r AND Fee(M)>=(W2-C1-.01) THEN
9730 G=G+1
9739 New1(G)=Res(M)
9748 ELSE
9757 GOTO 9775
9766 END IF
9775 NEXT M
9784
9793 GOSUB Topographos_3
9802
9811 END IF
9820 END IF
9829
9838 GOSUB T_x_22
9847
9856
9865 REM: PLOT TRUNCATED NORMAL
9874
9883 GOSUB Graph

```

```

9892
9901 DEG
9910 LDIR 0
9919 LINE TYPE 1.5
9920 LORG 4
9937 MOVE Im.1*100,.1
9946 PEN 4 ' Brown pen
9955 DRAW Im.1*100,-.1
9964 MOVE Im.1*100,0
9973 IF Ap[1,2]="PL" THEN
9982 CSIZE 2.0,.5
9991 LABEL USING 10000:Im.1
10000 IMAGE 27.00
10009 ELSE
10018 CSIZE 2.5,.5
10027 LABEL USING 10030:Im.1
10036 IMAGE 27.00
10045 END IF
10054 LORG 4
10063 MOVE Im.r*100,.1
10072 DRAW Im.r*100,-.1
10081 MOVE Im.r*100,0
10090 IF Ap[1,2]="PL" THEN
10099 CSIZE 2.0,.5
10108 LABEL USING 10117:Im.r
10117 IMAGE 27.00
10126 ELSE
10135 CSIZE 2.5,.5
10144 LABEL USING 10152:Im.r
10153 IMAGE 27.00
10162 END IF
10171
10180 GOSUB Ar.ise
10189
10198 IF Ap[1,1]="S" THEN
10207 LINE TYPE 3
10216 END IF
10225 Z_dph_ba=1/Dph_ba
10234 Zz_mo=((1/St_dev_tr)*(1/SQR(2*PI)))*1_dph_ba
10243
10252 Scale_tr=Tr_e_max/Zz_moan
10261
10270 FOR I=(Im.1*100) TO (Im.r*100) STEP Bnna
10279 Zz=((1/St_dev_tr)*(1/SQR(2*PI)))*EXP(-.5*(((I/100)-Mo_tr)/St_dev_tr)^2)*1_dph_ba*Scale_tr
10288 Y=Zz
10297 IF I=(Im.1*100) THEN
10306 MOVE I,Y
10315 PEN 4 ' Blue pen
10324 ELSE
10333 DRAW I,Y
10342 END IF
10351 GNEXT I
10360 LDIR 0
10369 IF Ap[1,1]="S" THEN
10378 VIEWPORT 0,200,0,200
10387 WINDOW 0,200,0,200
10396 MOVE 3,170
10405 IDRAW 0,0
10414 LORG 2

```

```

10423 MOVE 10,170
10432 CSIZE 3.5, 4
10441 LINE TYPE 1,5
10450 IF Lab=1 THEN
10459 LABEL USING 10460
10460 IMAGE " : Truncated Normal dist. ",0
10477 MOVE 65,170
10486 LABEL "( 95% )"
10495 ELSE
10504 IF Lab=2 THEN
10513 LABEL USING 10522
10522 IMAGE " : Truncated Normal dist. ",0
10531 MOVE 65,170
10540 LABEL "( 97.5% )"
10549 ELSE
10558 LABEL USING 10567
10567 IMAGE " : Truncated Normal dist. ",0
10576 MOVE 65,170
10585 LABEL "( 99% )"
10594 END IF
10603 END IF
10612 ELSE " ( IF A04(1,2)="PL" )
10621 VIEWPORT 0,134,9,86
10630 WINDOW 0,100,0,100
10639 MOVE 2,92
10648 IDRAW 2,0
10657 LONG 2
10666 MOVE 5,92
10675 CSIZE 1.5,.5
10684 IF Lab=1 THEN
10693 LABEL USING 10702
10702 IMAGE " : Truncated Normal dist. ",0
10711 MOVE 20,92
10720 LABEL "( 95% )"
10729 ELSE
10738 IF Lab=2 THEN
10747 LABEL USING 10756
10756 IMAGE " : Truncated Normal dist. ",0
10765 MOVE 20,92
10774 LABEL "( 97.5% )"
10783 ELSE
10792 LABEL USING 10801
10801 IMAGE " : Truncated Normal dist. ",0
10810 MOVE 20,92
10819 LABEL "( 99% )"
10828 END IF
10837 END IF
10846 PEN 0
10855 PEN,JP
10864 END IF
10873 REM:=====
10882 :
10891 :
10900 DISP "Do you want to see the Truncated Normal for some other confidence is
val (Y/N)?"
10909 INPUT A#
10918 IF A#(1,1)="Y" THEN
10927 GCLEAR
10936 :
10945 For=1

```

```

10954 Forc_1=1
10963 Sx1=1
10972 GOSUB Conf_1
10981 '
10990 GOSUB Classification
10999 '
11000 GOTO 5096
11017 ELSE
11026 IF A10(1,1)~"N" THEN
11035 Mo=0
11044 GOTO 14491
11053 ELSE
11062 GOTO 10900
11071 END IF
11080 END IF
11089 '
11096 '
11107 REM-----
11116 REM
11125 REM
11134 REM=====
11143 REM INVERSE GAUSSIAN DISTRIBUTION
11152 REM-----
11161 '
11170 '
11179 REM:-----
11188 REM Estimation of the Inverse Gaussian distribution parameters
11197 REM:-----
11206 '
11215 '
11224 REM:--- "NEW" RESIDUALS FOR INVERSE GAUSSIAN DISTRIBUTION ---
11233 '
11242 K=C1-A1
11251 FOR J=1 TO Obs
11260 Res_1_inv(J)=K+Res_1(J)
11269 NEXT J
11278 Ssum_inv=0
11287 FOR J=1 TO Obs
11296 Ssum_inv=Ssum_inv+Res_1_inv(J)
11305 NEXT J
11314 Mo_inv=Ssum_inv/Obs
11323 St_inv=0
11332 FOR J=1 TO Obs
11341 St_inv=St_inv+(Res_1_inv(J)-Mo_inv)^2
11350 NEXT J
11359 Disp_inv=(Mo_inv^3*Obs)/St_inv
11368 '
11377 FOR J=1 TO Obs
11386 Res_inv(J)=K+Res(J)
11395 NEXT J
11404 '
11413 '
11422 REM:-----
11431 REM PRINT "NEW" RESIDUALS FOR INVERSE GAUSSIAN DISTRIBUTION
11440 REM:-----
11449 '
11458 '
11467 OUTPUT 2;"K":
11476 IF Answer0(1,2)~"PS" THEN
11485 PRINT USING 11494

```

```

11494 IMAGE 4/,"XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX"
11503 IF Pnr=1 THEN OUTPUT @Prt USING 11494
11512 END IF
11521 PRINT USING 11538
11538 IMAGE 2/,38X,"N O T I C E",/,38X,"-----"
11539 IF Pnr=1 THEN OUTPUT @Prt USING 11538
11548 PRINT USING 11557
11557 IMAGE 2/,18X,"Since the p.d.f of the Inverse Gaussian distribution",/,18X
,"is defined ONLY by POSITIVE numbers.",/,24X,"NEW: POSITIVE residuals"
11566 IF Pnr=1 THEN OUTPUT @Prt USING 11557
11575 PRINT USING 11584
11584 IMAGE 2/,13X,"are introduced."
11597 IF Pnr=1 THEN OUTPUT @Prt USING 11584
11602
11611 GDSUB ry_o
11620
11629 PRINT USING 11638
11638 IMAGE 3/,25X,"-----",/,33X,"N E W",/,25X,"OBSERVATIONA
L RESIDUALS",/,25X,"-----",/
11647 IF Pnr=1 THEN OUTPUT @Prt USING 11638
11656 FOR I=1 TO Obs
11665 PRINT USING 11674;Res_inv(I)
11674 IMAGE 34X,8Z.D
11683 IF Pnr=1 THEN OUTPUT @Prt USING 11674;Res_inv(I)
11692 NEXT I
11701 IF Obs=100 THEN
11710 PRINT USING 11719;Obs
11719 IMAGE 4/,4X,"TOTAL NO. OF OBS. RESIDUALS = ",/2D,/,4X,"-----"
11728 IF Pnr=1 THEN OUTPUT @Prt USING 11719;Obs
11737 ELSE
11746 IF Obs=100 AND Obs<1000 THEN
11755 PRINT USING 11764;Obs
11764 IMAGE 4/,4X,"TOTAL NO. OF OBS. RESIDUALS = ",/3D,/,4X,"-----"
11773 IF Pnr=1 THEN OUTPUT @Prt USING 11764;Obs
11782 ELSE
11791 PRINT USING 11800;Obs
11800 IMAGE 4/,4X,"TOTAL NO. OF OBS. RESIDUALS = ",/4D,/,4X,"-----"
11809 IF Pnr=1 THEN OUTPUT @Prt USING 11800;Obs
11818 END IF
11827 END IF
11836 PRINT USING 11845;Mo_inv,Disp_inv
11845 IMAGE 2/,4X,"Mean value of 'NEW' residuals =",/2D.D,2/,4X,"Dispersion of 'N
EW' residuals =",/3D.D
11854 IF Pnr=1 THEN OUTPUT @Prt USING 11845;Mo_inv,Disp_inv
11863 PRINT USING 11872
11872 IMAGE 5/
11881
11890 GDSUB Carry_on
11899
11900
11917 REM:
11926 REM
11935 REM
11944 REM:
11953 REM CLASSIFICATION OF THE "NEW" RESIDUALS
11962 REM:

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11971
11980
11989 PRINT USING 11998
11998 IMAGE 7/,13X, " CLASS",13X,"CLASSIFICATION OF",6X,"FREQUENCY OF"
12007 IF Pnr=1 THEN OUTPUT @Prt USING 11998
12016 PRINT USING 12025
12025 IMAGE 9X,"INTERVALS (sec)",9X,"OBS. RESIDUALS",9X,"OBS. RESIDUALS",/,6X,"-
-----",6X,"-----",7X,"-----"
12034 IF Pnr=1 THEN OUTPUT @Prt USING 12025
12043 Mh_inv=Res_inv(I)
12052 FOR I=2 TO Obs
12061 IF Res_inv(I)>Mh_inv THEN
12070 Mh_inv=Res_inv(I)
12079 ELSE
12088 GOTO 12106
12097 END IF
12106 NEXT I
12115 Mh_inv=Res_inv(I)
12124 FOR I=2 TO Obs
12133 IF Res_inv(I)>Mh_inv THEN
12142 Mh_inv=Res_inv(I)
12151 ELSE
12160 GOTO 12178
12169 END IF
12178 NEXT I
12187 FOR I=0 TO 180 STEP C1
12196 IF Mh_inv<-.01 THEN
12205 I2_inv=I
12214 GOTO 12232
12223 END IF
12232 NEXT I
12241 I1_inv=C1
12250 A1_inv=I1_inv
12259 A2_inv=I2_inv
12268 Kef=0
12277 As=0
12286 Sml=0
12295 FOR I=I1_inv TO I2_inv STEP C1
12304 IF I>I2_inv-.01 THEN
12313 GOTO 12646
12322 END IF
12331 PRINT USING 12340:I,1+C1
12340 IMAGE /,6X,SZ.DD," - ",X,SZ.DD,"(-)"
12349 IF Pnr=1 THEN OUTPUT @Prt USING 12340:I,1+C1
12358 G=0
12367 FOR J=1 TO Obs
12376 IF Res_inv(J)<(I+C1-.01) AND Res_inv(J)>I-.01 THEN
12385 G=0+1
12394 New1(I)=Res_inv(J)
12403 ELSE
12412 GOTO 12430
12421 END IF
12430 NEXT J
12439 Kef=Kef+1
12448 Pfcen(Kef)=G
12457 As=As+1
12466 Obs_fr_n(As)=G
12475 Sml=Sml+G
12484 IF G=0 THEN
12493 PRINT USING 12500:Obs_fr_n(As)

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12502 IMAGE 62X,3D
12511 IF For=1 THEN OUTPUT @Prt USING 12502:Obs_fr_n(As)
12512 ELSE
12513   FOR L=1 TO G
12514     IF L= G THEN
12515       PRINT USING 12556:New1(L)
12516       IMAGE 30X,52.D
12517       IF For=1 THEN OUTPUT @Prt USING 12556:New1(L)
12518     ELSE
12519       PRINT USING 12592:New1(L),Obs_fr_n(As)
12520       IMAGE 30X,52.D,20X,3D
12521       IF For=1 THEN OUTPUT @Prt USING 12592:New1(L),Obs_fr_n(As)
12522     END IF
12523   NEXT L
12524 END IF
12525 NEXT I
12526 IF Sml1=100 THEN
12527   PRINT USING 12664:Sml1
12528   IMAGE /,56X,"-----",/,63X,2D
12529   IF For=1 THEN OUTPUT @Prt USING 12664:Sml1
12530 ELSE
12531   IF Sml1=100 AND Sml1<1000 THEN
12532     PRINT USING 12709:Sml1
12533     IMAGE /,56X,"-----",/,62X,3D
12534     IF For=1 THEN OUTPUT @Prt USING 12709:Sml1
12535   ELSE
12536     PRINT USING 12745:Sml1
12537     IMAGE /,56X,"-----",/,61X,4D
12538     IF For=1 THEN OUTPUT @Prt USING 12745:Sml1
12539   END IF
12540 END IF
12541 Max_afcen=Mfoen(I)
12542 FOR J=2 TO Knt
12543   IF Mfoen(I)>Max_afcen THEN
12544     Max_afcen=Mfoen(I)
12545   ELSE
12546     GOTO 12644
12547   END IF
12548 NEXT J
12549
12550 IF Answer$(1,1)="" THEN
12551   PRINT USING 12880
12552   IMAGE 4/, "*****"
12553   *****
12554   IF For=1 THEN OUTPUT @Prt USING 12880
12555 END IF
12556
12557 GOSUB Carry_on
12558
12559 REM*****
12560 S=1+Series+1
12561
12562 REM***** M O M E N T S *****
12563
12564 GOSUB Erotics
12565
12566 Sec_mom_inv=(Mo_2-Mo_inv^2)
12567 Thrd_mom_inv=(Mo_3)-(3*Mo_2*Mo_inv)+(2*Mo_inv^3)
12568 Fourth_mom_inv=(Mo_4)-(4*Mo_3*Mo_inv)+(6*Mo_2*Mo_inv^2)-(3*Mo_inv^4)

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13033 Act_skew_inv=Third_mom_inv/SQR(Sec_mom_inv^3)
13042 Act_kurt_inv=Fourth_mom_inv/Sec_mom_inv^2
13051 '
13060 Th_skew_inv=1+3*SQR(Mo_inv/Disp_inv)
13069 Th_kurt_inv=1+15*Mo_inv/Disp_inv^3
13078 Th_skew_inv=INT(Th_skew_inv*1000)/1000
13087 Th_kurt_inv=INT(Th_kurt_inv*1000)/1000
13096 '
13105 PRINT USING 13114
13114 IMAGE 5/,24X,"===== ",/,24X,"INVERSE GAUSSIAN D
ISTRIBUTION",/,24X,"===== ",/
13123 IF Pnr=1 THEN OUTPUT @Prt USING 13114
13132 IF Answer$(1,2)='PS' THEN
13141 PRINT USING 13150;Th_skew_inv,Th_kurt_inv
13150 IMAGE 3/,20X,"THEORETICAL coefficient of SKEWNESS = ",D.3D,2/,20X,"THEOR
ETICAL coefficient of KURTOSIS = ",D.3D
13159 IF Pnr=1 THEN OUTPUT @Prt USING 13150;Th_skew_inv,Th_kurt_inv
13168 ELSE ' ( Answer$(1,1)="S" )
13177 PRINT TAB(21);CHR$(130);"THEORETICAL coefficient of SKEWNESS = ";Th_skew
_inv
13186 PRINT USING 13195
13195 IMAGE /
13204 PRINT TAB(21);CHR$(130);"THEORETICAL coefficient of KURTOSIS = ";Th_kurt
_inv
13213 PRINT CHR$(128);
13222 END IF
13231 PRINT USING 13240;Act_skew_inv,Act_kurt_inv
13240 IMAGE 3/,22X,"ACTUAL coefficient of SKEWNESS = ",S2.3D,2/,22X,"ACTUAL coef
ficient of KURTOSIS = ",S2.3D
13249 IF Pnr=1 THEN OUTPUT @Prt USING 13240;Act_skew_inv,Act_kurt_inv
13258 '
13267 GOSUB Carry_on
13276 '
13285 REM:!!!!!!!!!!!!!!!!!!!!
13294 '
13303 '
13312 GOSUB Choice
13321 '
13330 GOSUB T_x_21
13339 '
13348 PRINT USING 13357;A1_inv
13357 IMAGE /,5X,"+0.05 ",X," - ",X,S2.0D,"(-)"
13366 IF Pnr=1 THEN OUTPUT @Prt USING 13357;A1_inv
13375 Categ=Categ+1
13384 Area_1=0
13393 FOR I=.03 TO A1_inv STEP D1
13402 Fx_1=SQR(Disp_inv/(2*PI*I^3))*EXP(-(Disp_inv*(I-Mo_inv)^2)/(2*Mo_inv^2*I
))
13411 Area_1=Area_1+Fx_1*D1
13420 NEXT I
13429 Area_2=0
13438 FOR J=.03 TO .05 STEP D1
13447 Fx_2=SQR(Disp_inv/(2*PI*J^3))*EXP(-(Disp_inv*(J-Mo_inv)^2)/(2*Mo_inv^2*J
))
13456 Area_2=Area_2+
13465 NEXT J
13474 Area=Area_1-Area_
13483 Area=Area
13492 '
13501 GOSUB Emp

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13510 '
13519 REM ' ' '
13520 Gam=A1_inv
13527 FOR I=A1_inv TO A2_inv STEP C1
13546 IF I=A2_inv+.01 THEN
13555 GOTO 13753
13564 END IF
13573 Categ=Categ+1
13582 PRINT USING 13591;I,I+C1
13591 IMAGE /,5X,SZ,DD," " = ",X,SZ,DD,"(-)"
13600 IF Pnn=1 THEN OUTPUT @Prt USING 13591;I,I+C1
13609 Gam=Gam+C1
13618 Area_1=0
13627 FOR K=.05 TO Gam STEP Dx
13636 Fx_1=SOR(Disp_inv/(2+P1*x^3))*EXP(-(Disp_inv*(K-Mo_inv)^2)/(2*Mo_inv^2
+K))
13645 Area_1=Area_1+Fx_1*Dx
13654 NEXT K
13663 Area=Area_1-Area
13672 Aarea=Aarea+Area
13681 '
13690 GOSUB Topographos_1
13699 '
13708 GOSUB Topographos_2
13717 '
13726 GOSUB Topographos_3
13735 '
13744 NEXT I
13753 REM ' ' '
13762 PRINT USING 13771;A2_inv
13771 IMAGE /,5X,SZ,DD,X," " = ",X,"+30"
13780 IF Pnn=1 THEN OUTPUT @Prt USING 13771;A2_inv
13789 Categ=Categ+1
13798 Area_1=0
13807 FOR I=.05 TO 30 STEP Dx
13816 Fx_1=SOR(Disp_inv/(2+P1*I^3))*EXP(-(Disp_inv*(I-Mo_inv)^2)/(2*Mo_inv^2+I
))
13825 Area_1=Area_1+Fx_1*Dx
13834 NEXT I
13843 Area=Area_1-Aarea
13852 '
13861 GOSUB Emp
13870 '
13879 GOSUB T_x_22
13888 '
13897 '
13906 REM!!!! PLOT INVERSE GAUSSIAN DISTR. !!!!
13915 '
13924 GOSUB Graph
13933 '
13942 GOSUB Arxise
13951 '
13960 IF APl(1,2)="PL" THEN
13969 PEN 0
13978 PRINT USING 13987
13987 IMAGE 9/,10X,"Put the LADI PEN in the position of the PEN 3 ."
13996 '
14005 GOSUB Carry_on
14014 '
14023 PEN 3 ' Ladi pen

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```

14032 END IF
14041 IF Ap#(1,1)="#S" THEN
14050 LINE TYPE 3
14059 END IF
14068 Ekth_mean=0
14077 Y_mean=SQR(Disp_inv/(2*P1*Mo_inv/3))
14086 '
14095 Scale_inv=Th_fr_e_mean/Y_mean
14104 '
14113 Kx_1=C1/2+ABS(A1)+C1/2
14122 FOR I=(Noin1)*C1+100 TO (Noin+1)*(C1+100) STEP Bnea
14131 Ekth=EXP(-(Disp_inv*((Kx_1+(1/100))-Mo_inv)^2/(2*P1_inv/2*(Kx_1+(1/100)
)))
14140 Y=SQR(Disp_inv/(2*P1*((Kx_1+(1/100))-3)))*Ekth*Scale_inv
14149 IF I=-((Noin1)*C1+100) THEN
14158 MOVE I,Y
14167 ELSE
14176 DRAW I,Y
14185 END IF
14194 NEXT I
14203 LDIR 0
14212 IF Ap#(1,1)="#S" THEN
14221 VIEWPORT 0,200,0,200
14230 WINDOW 0,200,0,200
14239 MOVE 3,160
14248 IDRAW 0,0
14257 LORG 2
14266 MOVE 10,160
14275 CSIZE 3,5,4
14284 LINE TYPE 1,5
14293 LABEL " : Inverse Gaussian dist. "
14302 ELSE " ( IF Ap#(1,2)="#PL" )
14311 VIEWPORT 3,171,9,86
14320 WINDOW 0,100,0,100
14329 MOVE 2,89
14338 IDRAW 2,0
14347 LORG 2
14356 MOVE 5,89
14365 CSIZE 1,5,1,5
14374 LABEL " : Inverse Gaussian dist. "
14383 PEN 0
14392 PENSUP
14401 END IF
14410 '
14419 '
14428 Me=0
14437 GOTO 14491
14446 '
14455 '
14464 REM-----
14473 REM
14482 REM
14491 @EM+*****
14500 '
14509 '
14518 DISP "Do you want to see the DIFFERENCE between Theoretical-Observed distr
(V/N)?"
14527 INPUT Vlepos
14536 IF Vlepos(1,1)="#Y" THEN
14545 OUTPUT 2;"K":

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```

14554 Alekos=1
14563 GOTO 14789
14572 ELSE
14581 IF Vlepo$(1,1)="N" THEN
14590 GOTO 14644
14599 ELSE
14608 GOTO 14518
14617 END IF
14626 END IF
14635 '
14644 DISP "Do you want to see any other distributions of the fore-mentioned one
s (Y/N) ?";
14653 INPUT Distr#
14662 IF Distr$(1,1)="Y" THEN
14671 GOTO 15031
14680 ELSE
14689 IF Distr$(1,1)="N" THEN
14698 GOTO 15787
14707 ELSE
14716 GOTO 14644
14725 END IF
14734 END IF
14743 '
14752 '
14761 REM=====
14770 REM
14779 REM
14788 REM=====
14797 REM DIFFERENCE BETWEEN THEORETICAL AND OBSERVED DISTRIBUTION
14806 REM =====
14815 '
14824 '
14833 Max_diff=Diff(1)
14842 FOR I=2 TO Metr
14851 IF Max_diff<Diff(I) THEN
14860 GOTO 14896
14869 ELSE
14878 Max_diff=Diff(I)
14887 END IF
14896 NEXT I
14905 Min_diff=Diff(1)
14914 FOR I=2 TO Metr
14923 IF Min_diff>Diff(I) THEN
14932 GOTO 14968
14941 ELSE
14950 Min_diff=Diff(I)
14959 END IF
14968 NEXT I
14977 '
14986 GOSUB Graph
14995 '
15004 Alekos=0
15013 GOTO 14644
15022 '
15031 REM=====
15040 REM M E N U
15049 REM =====
15058 '
15067 '
15076 Clear$=CHR$(255)&CHR$(75)

```

335

336

$\rho_{\text{eff}} = \rho_p + \rho_m$, $\mu_{\text{eff}} = \mu_p + \mu_m$

```

16670 For=1
16687 For_i=1
16696 Series=1
16705 END IF
16714 CONTROL 2,1:0
16723 CONTROL 1,4:0
16732 OUTPUT 2:Clrscr
16741 STATUS 1,9:Screen
16750 PRINT USING 16759
16759 IMAGE 5/
16760 PRINT USING 16777
16777 IMAGE 21X,"-----"
16786 PRINT TAB(20:CHR(13)): " S U R - M E N U "
16795 PRINT CHR(13)
16804 PRINT USING 16813
16813 IMAGE 21X,"-----"
16822 Point=11
16831 PRINT TAB(22:1,"1. TRUNCATED NORMAL ( 95% )"
16840 PRINT TAB(22:1,"2. TRUNCATED NORMAL ( 97.5% )"
16849 PRINT TAB(22:1,"3. TRUNCATED NORMAL ( 99% )"
16858 PRINT TAB(17:Point):Marker$
16867 ON *K0 GOTO Select_key_1
16876 ON *K0R 10 GOTO Move_pointer_1
16885 Spin_1:GOTO Spin_1
16894
16903 Move_pointer_1:
16912 IF *K0BX=0 THEN
16921 Point=Point+1
16930 ELSE
16939 Point=Point-1
16948 END IF
16957 IF Point=11 THEN Point=11
16966 IF Point=13 THEN Point=13
16975 OUTPUT 2:Home$
16984 PRINT " "
16993 PRINT TAB(17:Point):Marker$
17002 GOTO Spin_1
17011
17020 OFF *K0
17029 Select_key_1:
17038 OUTPUT 2:"K"
17047 SELECT Point
17056 Me=0
17065 CASE 9+2
17074 IF For_i=1 AND Series=1 Then
17083 PRINT USING 17092
17092 IMAGE 9,15X,".....",7,15X,
" ,46X," "
17101 PRINT USING 17110
17110 IMAGE 15X," ,3X,"TRUNCATED NORMAL DISTRIBUTION ( 95% )",3X," ,",7,1
5X," "
17119 END IF
17120 GRAPHICS ON
17137 T1e_1=Mo_nor-1.960*St_dev_o
17146 T1e_r=Mo_nor+1.960*St_dev_o
17155 Dph_ba=.9240
17164 Lab=1
17173 Menu$="TRUNCATED NORMAL ( 95% )"
17182 WAIT 1
17191 OUTPUT 2:"K":

```

```

17200 CASE 10+2
17209 IF For# 1=1 AND S#is=1 THEN
17210 PRINT USING 1722
17227 IMAGE 97.13X....."/.13
17236 PRINT USING 17245
17245 IMAGE 13X.....3X"TRUNCATED NORMAL DISTRIBUTION ( 97.5% )"3X....."/
17254 END IF
17263 GRAPHICS ON
17272 T#m_1=Mo_nor=2.244*St_dev_o
17281 T#m_r=Mo_nor=2.244*St_dev_o
17290 Doh_ba=.9750
17299 Lab=2
17306 Menu#="TRUNCATED NORMAL ( 97.5% )"
17317 WAIT 1
17326 OUTPUT 2:"K":
17335 CASE 11+2
17344 IF For# 1=1 AND S#is=1 THEN
17353 PRINT USING 17362
17362 IMAGE 97.15X....."/.15X
17371 PRINT USING 17380
17380 IMAGE 15X.....3X"TRUNCATED NORMAL DISTRIBUTION ( 99% )"3X....."/.1
17389 END IF
17398 GRAPHICS ON
17407 T#m_1=Mo_nor=2.576*St_dev_o
17416 T#m_r=Mo_nor=2.576*St_dev_o
17425 Doh_ba=.9900
17434 Lab=3
17443 Menu#="TRUNCATED NORMAL ( 99% )"
17452 WAIT 1
17461 OUTPUT 2:"K":
17470 END SELECT
17479 For#For#1
17488 RETURN
17497
17506 REM/////////XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
17515
17524
17533 REM-----
17542 REM SUBROUTINE Choice FOR DECISION FOR TEST 1+2
17551 REM -----
17560 REM
17569 STOP
17578 Choice:
17587
17596 PRINT USING 17605
17605 IMAGE 10/.16X....."
17614 PRINT TAB(17);CHR(121);" C H I - S Q U A R E GOODNESS-OF-FIT TEST "
17623 PRINT CHR(120);
17632 PRINT USING 17641
17641 IMAGE 16X....."
17650 WAIT 5
17659 IF Me=1 THEN GOTO 4771
17668 IF Me=2 THEN GOTO 6670
17677 IF Me=3 THEN GOTO 13330
17686 RETURN
17695

```

```

17704 REM/////XXXXX/////XXXXX          ////'XXXXX'/////XXXXX
17713 '
17722 '
17731 REM=====
17740 REM SUBROUTINE T x 21 FOR TEST X^2 FOR FIT OF GOODNESS (1)
17749 REM .....
17758 REM
17767 STOP
17776 T_x_21='
17785 '
17794 REM:||||| CALCULATION OF THE THEORITICAL FREQUENCY :|||||
17803 '
17812 OUTPUT 2:"K":
17821 GOCLEAR
17830 IF Answer$(1,2)!="PS" THEN
17839 IF Error$(1,1)!="Y" THEN
17848 GOTO 17920
17857 ELSE ' ( Error$(1,1)!="N" )
17866 PRINT USING 17875
17875 IMAGE 4, "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX"
XXXXXXXXXXXXXXXXXXXX
17884 IF Pnr=1 THEN OUTPUT @Prt USING 17875
17893 GOTO 17947
17902 END IF
17911 END IF
17920 PRINT USING 17929
17929 IMAGE 4, 10X, "-----"
17938 IF Pnr=1 THEN OUTPUT @Prt USING 17929
17947 IF Answer$(1,2)!="PS" THEN
17956 PRINT USING 17965:CHR$(124):CHR$(124)
17965 IMAGE 4, 13X, "-----", 1
3X,A,2X,"CHI - S Q U A R E GOODNESS-OF-FIT T E S T",2X,A
17974 IF Pnr=1 THEN OUTPUT @Prt USING 17965:CHR$(124):CHR$(124)
17983 PRINT USING 17992
17992 IMAGE 13X, "-----", /
18001 IF Pnr=1 THEN OUTPUT @Prt USING 17992
18010 IF Error$(1,1)!="Y" THEN
18019 GOTO 18200
18028 ELSE ' ( Error$(1,1)!="N" )
18037 GOTO 18064
18046 END IF
18055 END IF
18064 ON Me GOTO 18073,18109,18253
18073 PRINT USING 18082
18082 IMAGE 3, 29X, "NORMAL DISTRIBUTION", /, 29X, "-----"
18091 IF Pnr=1 THEN OUTPUT @Prt USING 18082
18100 GOTO 18200
18109 IF Lab=1 THEN
18118 PRINT USING 18127
18127 IMAGE 3, 20X, "TRUNCATED NORMAL DISTRIBUTION ( 95% )", /, 20X, "-----"
18136 IF Pnr=1 THEN OUTPUT @Prt USING 18127
18144 ELSE
18154 IF Lab=2 THEN
18163 PRINT USING 18172
18172 IMAGE 3, 18X, "TRUNCATED NORMAL DISTRIBUTION ( 97.5% )", /, 18X, "-----"
18181 IF Pnr=1 THEN OUTPUT @Prt USING 18172
18190 ELSE
18199 PRINT USING 18208

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18208 IMAGE 3/.20X,"TRUNCATED NORMAL DISTRIBUTION (.99X)",.7,20X,"-----
*****"
18217 IF Pnr=1 THEN OUTPUT @Prt USING 18208
18226 END IF
18235 END IF
18244 GOTO 16290
18252 PRINT USING 18262
18262 IMAGE 3/.24X,"INVERSE GAUSSIAN DISTRIBUTION",.7,24X,"-----
*****"
18271 IF Pnr=1 THEN OUTPUT @Prt USING 18262
18280 PRINT USING 18289
18289 IMAGE 4/.11X, " CLASS",.11X," CLASSIF. 18F",.6X,"THEORETICAL",.4X,"OBSERVED"
18298 IF Pnr=1 THEN OUTPUT @Prt USING 18289
18307 PRINT USING 18316
18316 IMAGE 7X,"INTERVALS (w=)",.4X," OBS. RESIDUALS",.3X,"FREQUENCY (e)",.3X,"FR
EQUENCY (n)"
18325 IF Pnr=1 THEN OUTPUT @Prt USING 18316
18334 PRINT USING 18343
18343 IMAGE 7X,"-----",.7X,"-----",.3X,"-----",.3X,
-----"
18 IF Pnr=1 THEN OUTPUT @Prt USING 18343
18 Dm=.01
18 Rm=.0
18279 Cat0=0
18388 Int=0
18397 Sml=0
18406 Ss=0
18415 Sss=0
18424 RETURN
18432
18442 REM/////////XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
18451
18460
18469 REM-----
18478 REM SUBROUTINE T_x,22 FOR TEST X FOR FIT OF GOODNESS (2)
18487 REM -----
18495 REM
18505 STOP
18514 T_x,22
18523
18532 Ss=Obs
18541 REM-----
18550 IF Obs=100 THEN
18557 PRINT USING 18568;Ss,Sml
18568 IMAGE .45X,"-----",.8X,"-----",.7,50X,2D,2D,12X,2D
18577 IF Pnr=1 THEN OUTPUT @Prt USING 18568;Ss,Sml
18586 ELSE
18595 IF Obs=100 AND Obs<1000 THEN
18604 PRINT USING 18613;Ss,Sml
18613 IMAGE .7,40X,"-----",.8X,"-----",.7,49X,3D,2D,11X,3D
18622 IF Pnr=1 THEN OUTPUT @Prt USING 18613;Ss,Sml
18631 PAUSE
18640 ELSE
18647 PRINT USING 18658;Ss,Sml
18658 IMAGE .7,40X,"-----",.8X,"-----",.7,48X,4D,2D,10X,4D
18667 IF Pnr=1 THEN OUTPUT @Prt USING 18658;Ss,Sml
18676 END IF
18685 END IF
18694 REM-----
18703

```

```

18208 IMAGE 3/,20X,"TRUNCATED NORMAL DISTRIBUTION ( 94% )",/,20X," *****
*****"
18217 IF Pnr=1 THEN OUTPUT @Prt USING 18208
18226 END IF
18235 END IF
18244 GOTO 18280
18253 PRINT USING 18262
18262 IMAGE 3/,24X,"INVERSE GAUSSIAN DISTRIBUTION",/,24X,"*****"
*****"
18271 IF Pnr=1 THEN OUTPUT @Prt USING 18262
18280 PRINT USING 18289
18289 IMAGE 4/,11X," CLASS",11X," CLASSIF. IF",6X,"THEORETICAL",6X,"OBSERVED"
18298 IF Pnr=1 THEN OUTPUT @Prt USING 18289
18307 PRINT USING 18316
18316 IMAGE 7X,"INTERVALS (sec)",4X," OBS. RESIDUALS",3X,"FREQUENCY (e)",3X,"FR
EQUENCY (n)"
18325 IF Pnr=1 THEN OUTPUT @Prt USING 18316
18334 PRINT USING 18343
18343 IMAGE 5X,"-----",7X,"-----",3X,"-----",3X,
"-----"
18352 IF Pnr=1 THEN OUTPUT @Prt USING 18343
18361 Dv=.01
18370 Metr=0
18379 Categ=0
18388 Km=0
18397 Sm1=0
18406 Ss=0
18415 Sss=0
18424 RETURN
18433
18442 REM//////////XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
18451
18460
18469 REM=====
18478 REM SUBROUTINE T_x_22 FOR TEST X 2 FOR FIT OF GOODNESS (2)
18487 REM .....
18496 REM .....
18505 STOP
18514 T_x_22=
18523
18532 Ss=Obs
18541 REM-----
18550 IF Obs<100 THEN
18559 PRINT USING 18568:Se,Sm1
18568 IMAGE //,48X,"-----",8X,"-----",/,50X,2D,2D,12X,2D
18577 IF Pnr=1 THEN OUTPUT @Prt USING 18568:Se,Sm1
18586 ELSE
18595 IF Obs=100 AND Obs<1000 THEN
18604 PRINT USING 18613:Se,Sm1
18613 IMAGE //,48X,"-----",8X,"-----",/,49X,3D,2D,11X,3D
18622 IF Pnr=1 THEN OUTPUT @Prt USING 18613:Se,Sm1
18631 PAUSE
18640 ELSE
18649 PRINT USING 18658:Se,Sm1
18653 IMAGE //,48X,"-----",8X,"-----",/,48X,4D,2D,10X,4D
18667 IF Pnr=1 THEN OUTPUT @Prt USING 18658:Se,Sm1
18676 END IF
18685 END IF
18694 REM-----
18703

```

```

18712 WAIT 2
18721 Categ_n=1
18730 kar1=0
18739 kar2=0
18748 Sss=0
18757 Z=0
18766 FOR Metr=1 TO Categ
18775 Z=Z+1
18784 Kar1=kar1+Obs_fr_n(Metr)
18793 Kar2=kar2+Th_fr_n(Metr)
18802 IF Metr=Categ AND Kar2>=5 THEN
18811 Th_fr_n_tel(Categ_n)=kar2
18820 Obs_fr_n_tel(Categ_n)=kar1
18829 Test_x_2_tel(Categ_n)=(Kar1-Kar2)^2/Kar2
18838 FOR I=1 TO Categ_n
18847 Sss=Sss+Test_x_2_tel(I)
18856 NEXT I
18865 GOTO 19279
18874 END IF
18883 IF Metr=Categ AND Kar2<5 THEN
18892 Categ_n=Categ_n-1
18901 Th_fr_n_tel(Categ_n)=Th_fr_n_tel(Categ_n)+kar2
18910 Obs_fr_n_tel(Categ_n)=Obs_fr_n_tel(Categ_n)+kar1
18919 Paol(Categ_n)=Paol(Categ_n)+1
18928 Test_x_2_tel(Categ_n)=(Obs_fr_n_tel(Categ_n)-Th_fr_n_tel(Categ_n))^2/T
h_fr_n_tel(Categ_n)
18937 FOR I=1 TO Categ_n
18946 Sss=Sss+Test_x_2_tel(I)
18955 NEXT I
18964 GOTO 19099
18973 END IF
18982 IF Kar2<=5 THEN
18991 Th_fr_n_tel(Categ_n)=kar2
19000 Obs_fr_n_tel(Categ_n)=kar1
19009 Test_x_2_tel(Categ_n)=(Kar1-Kar2)^2/Kar2
19018 Paol(Categ_n)=2
19027 Categ_n=Categ_n+1
19036 Kar1=0
19045 Kar2=0
19054 Z=0
19063 ELSE
19072 GOTO 19099
19081 END IF
19090 NEXT Metr
19099 IF Categ_n<=3 THEN
19108 WAIT 2
19117 OUTPUT 2;"K";
19126 PRINT USING 19135;Categ_n
19135 IMAGE /,15X,"Since the Theoretical (Expected) frequency for each",/,15X,
"class interval should not be LESS than 5, we have ",D
19144 PRINT USING 19153
19153 IMAGE 15X,"New categories. However, because the degrees of",/,15X,"freed
om ( must be >=1 ) are calculated as:",2/,25X,"No. of new categories - 2"
19162 PRINT USING 19171
19171 IMAGE /,15X,"It means that the Chi-Square test does not work for",/,15X,
"this specific class interval. Therefore, you have to"
19180 PRINT USING 19189
19189 IMAGE 15X,"Run the same set of data with",/,
19198 PRINT TAB(32);CHR$(138);" S M A L L E R"
19207 PRINT CHR$(128);

```

```

19216 PRINT USING 19225
19225 IMAGE /,15X,"class interval ( so, the degrees of freedom will be"/,15X,
"increased 1."
19234
19243 GOSUB Carry_on
19252
19261 GOTO 19800
19270 END IF
19279 PRINT USING 19288;Categ_n
19288 IMAGE 5/,"Since the Theoretical (Expected) frequency for each class interv
al should not"/,"be LESS than 5, we have the following "/,CD," NEW categories:"
19297 IF Pnr=1 THEN OUTPUT @Prt USING 19288;Categ_n
19306 PRINT USING 19315
19315 IMAGE 5/,"CLASS",12X,"THEORETICAL",6X,"OBSERVED"
19324 IF Pnr=1 THEN OUTPUT @Prt USING 19315
19333 PRINT USING 19342
19342 IMAGE 11X,"INTERVALS (sec)",5X,"FREQUENCY (e)",3X,"FREQUENCY (n)",3X,"(n-e
)/2/e"
19351 IF Pnr=1 THEN OUTPUT @Prt USING 19342
19360 PRINT USING 19369
19369 IMAGE 8X,
"-----",3X,"-----",3X,"-----",3X,"
19378 IF Pnr=1 THEN OUTPUT @Prt USING 19369
19387 REM-----
19396 IF Mee=1 OR Mee=3 THEN
19405 IF Mee=3 THEN
19414 C1=A1
19423 C2=A2
19432 A1=A1*inv
19441 A2=A2*inv
19450 END IF
19459 Alp=A1+C1+Pao(1)-C1
19468 IF Mee=1 THEN
19477 PRINT USING 19486;Alp,Th_fr_e_tel(1),Obs_fr_n_tel(1),Test_x_2_tel(1)
19486 IMAGE /,8X,"X0",5X," = ",X,SZ,DD,"(-)",6X,3D,DD,12X,3D,8X,3D,3D
19495 IF Pnr=1 THEN OUTPUT @Prt USING 19486;Alp,Th_fr_e_tel(1),Obs_fr_n_tel(
1),Test_x_2_tel(1)
19504 ELSE
19513 PRINT USING 19522;Alp,Th_fr_e_tel(1),Obs_fr_n_tel(1),Test_x_2_tel(1)
19522 IMAGE /,8X,"X0",5X," = ",X,SZ,DD,"(-)",6X,3D,DD,12X,3D,8X,3D,3D
19531 IF Pnr=1 THEN OUTPUT @Prt USING 19522;Alp,Th_fr_e_tel(1),Obs_fr_n_tel(
1),Test_x_2_tel(1)
19540 END IF
19549 FOR Categ_n=2 TO Categ_n-1
19558 Alp=Alp
19567 Alp=Alp+C1+Pao(Categ_n)
19576 IF Alp=A2 THEN
19585 GOTO 19639
19594 END IF
19603 PRINT USING 19612;Alp1,Alp,Th_fr_e_tel(Categ_n),Obs_fr_n_tel(Categ_n),
Test_x_2_tel(Categ_n)
19612 IMAGE /,8X,SZ,DD,"X," = ",X,SZ,DD,"(-)",6X,3D,DD,12X,3D,8X,3D,3D
19621 IF Pnr=1 THEN OUTPUT @Prt USING 19612;Alp1,Alp,Th_fr_e_tel(Categ_n),Ob
s_fr_n_tel(Categ_n),Test_x_2_tel(Categ_n)
19630 NEXT Categ_n
19639 PRINT USING 19648;Alp,Th_fr_e_tel(Categ_n),Obs_fr_n_tel(Categ_n),Test_x_
2_tel(Categ_n)
19648 IMAGE /,8X,SZ,DD,"X," = ",X,"X0",11X,3D,DD,12X,3D,8X,3D,3D
19657 IF Pnr=1 THEN OUTPUT @Prt USING 19648;Alp,Th_fr_e_tel(Categ_n),Obs_fr_n_
tel(Categ_n),Test_x_2_tel(Categ_n)

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```

19666 '
19675 GOSUB Ektypost
19684 '
19693 IF Me=3 THEN
19702 A1=C1
19711 A2=C2
19720 END IF
19729 '
19738 ELSE ' ( Me=2 )
19747 Wip=Sur1+C1*Fao(1)-C1
19756 PRINT USING 19765:Im_1,Wip,Th_fr_e_tel(1),Obs_fr_n_tel(1),Test_x_2_tel(1)
19765 '
19774 IMAGE 7,8X,5Z,DD,3X," - ",X,5Z,DD,"(-)",6X,3D,DD,12X,3D,8X,3D,3D
19774 IF Pnr=1 THEN OUTPUT @Frt USING 19765:Im_1,Wip,Th_fr_e_tel(1),Obs_fr_n_t
el(1),Test_x_2_tel(1)
19783 FOR Categ_n=2 TO Categ_n-1
19792 Wip1=Wip
19801 Wip=Wip+C1*Pan(Categ_n)
19810 IF Wip=Sur2 THEN
19819 GOTO 19673
19828 END IF
19837 PRINT USING 19846:Wip1,Wip,Th_fr_e_tel(Categ_n),Obs_fr_n_tel(Categ_n),
Test_x_2_tel(Categ_n)
19846 IMAGE 7,8X,5Z,DD,3X," - ",X,5Z,DD,"(-)",6X,3D,DD,12X,3D,8X,3D,3D
19855 IF Pnr=1 THEN OUTPUT @Frt USING 19846:Wip1,Wip,Th_fr_e_tel(Categ_n),Ob
s_fr_n_tel(Categ_n),Test_x_2_tel(Categ_n)
19864 NEXT Categ_n
19873 PRINT USING 19882:Wip,Im_r,Th_fr_e_tel(Categ_n),Obs_fr_n_tel(Categ_n),Te
st_x_2_tel(Categ_n)
19882 IMAGE 7,8X,5Z,DD,3X," - ",X,5Z,DD,9X,3D,DD,12X,3D,8X,3D,3D
19891 IF Pnr=1 THEN OUTPUT @Frt USING 19882:Wip,Im_r,Th_fr_e_tel(Categ_n),Obs_
fr_n_tel(Categ_n),Test_x_2_tel(Categ_n)
19900 '
19909 GOSUB Ektypost
19918 '
19927 END IF
19936 '
19945 GOSUB Carry_on
19954 '
19963 PRINT USING 19972
19972 IMAGE 4,.14X,"....."
19981 IF Pnr=1 THEN OUTPUT @Frt USING 19972
19990 '
19999 REM:.....
20008 REM DEGREES OF FREEDOM FOR X^2 TEST - 95% confidence level
20017 REM:.....
20026 '
20035 '
20044 Gg=1
20053 IF Gg=1 THEN
20062 Dfr=Categ-1-Go
20071 Gg=0
20080 ELSE
20089 Dfr=Categ_n-1-Go
20098 END IF
20107 RESTORE 20116
20116 FOR I=1 TO 30
20125 READ A(I)
20134 DATA 3.841,5.991,7.879,9.488,11.07,12.59,14.07,15.51,16.92,18.31
20143 DATA 19.68,21.03,22.36,23.68,25.00,26.30,27.59,28.87,30.14,31.41

```

```

20152 DATA 32.67,33.92,35.17,36.42,37.65,38.89,40.11,41.34,42.56,43.77
20161 NEXT I
20170 REM-----
20179 IF Sss=A(Dfr) THEN
20188 PRINT USING 20197:Dfr,A(Dfr)
20197 IMAGE 3/,"The Table A2 (Appendix A) gives i",2/,"22X,"X^2(0.050","20,"
= ",20,30
20206 IF Pnr=1 THEN OUTPUT @Prt USING 20197:Dfr,A(Dfr)
20215 IF Dfr=9 THEN
20224 PRINT USING 20233:Dfr
20233 IMAGE 7/,"Since i",2/,"22X,"X^2 <= X^2(0.050","Z,"),2/,"it means that
at the 5% level of significance the sample distribution is:"
20242 IF Pnr=1 THEN OUTPUT @Prt USING 20233:Dfr
20251 ELSE
20260 PRINT USING 20269:Dfr
20269 IMAGE 7/,"Since i",2/,"22X,"X^2 <= X^2(0.050","20,"),2/,"it means tha
t at the 5% level of significance the sample distribution is:"
20278 IF Pnr=1 THEN OUTPUT @Prt USING 20269:Dfr
20287 END IF
20296 GOTO 20440
20305 ELSE ( ( Sss=A(Dfr) ) )
20314 PRINT USING 20323:Dfr,A(Dfr)
20323 IMAGE 3/,"The Table A2 (Appendix A) gives i",2/,"22X,"X^2(0.050","20,"
= ",20,30
20332 IF Pnr=1 THEN OUTPUT @Prt USING 20323:Dfr,A(Dfr)
20341 IF Dfr=9 THEN
20350 PRINT USING 20359:Dfr
20359 IMAGE 7/,"Since i",2/,"22X,"X^2 >= X^2(0.050","Z,"),2/,"it means that
at the 5% level of significance the sample distribution is:"
20368 IF Pnr=1 THEN OUTPUT @Prt USING 20359:Dfr
20377 ELSE
20386 PRINT USING 20395:Dfr
20395 IMAGE 7/,"Since i",2/,"22X,"X^2 >= X^2(0.050","20,"),2/,"it means tha
t at the 5% level of significance the sample distribution is:"
20404 IF Pnr=1 THEN OUTPUT @Prt USING 20395:Dfr
20413 END IF
20422 END IF
20431 GOTO 20566
20440 REM-----
20449 IF Answer$(1,1)="S" THEN
20458 PRINT USING 20467
20467 IMAGE /
20476 PRINT TAB(31);CHR$(130);"C O N S I S T E N T"
20485 PRINT CHR$(120)
20494 PRINT USING 20467
20503 IMAGE /
20512 ELSE ( ( IF Answer$(1,2)="S" ) )
20521 PRINT USING 20530
20530 IMAGE 2/,"30X,"C O N S I S T E N T ",2/
20539 IF Pnr=1 THEN OUTPUT @Prt USING 20530
20548 END IF
20557 GOTO 20687
20566 REM-----
20575 IF Answer$(1,1)="S" THEN
20584 PRINT USING 20593
20593 IMAGE /
20602 PRINT TAB(26);CHR$(130);"N O T C O N S I S T E N T"
20611 PRINT CHR$(120)
20620 PRINT USING 20593
20629 IMAGE /

```

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Appendix G. "HI_DI_TEST" PROGRAM

```

21700 REM:.....
21710
21720
21730 OUTPUT 21;"K":
21740 DISP "Will you use the screen (=S) or the plotter (=PL) for the output ?":
21750 INPUT Ans
21760 IF Ans(1,1)="S" THEN
21770   GIN1
21780   GRAPHICS ON
21790   GOTO 21889
21799 ELSE
21800   IF Ans(1,2)="PL" THEN
21810     GOTO 23704
21820   ELSE
21830     GOTO 21745
21844   END IF
21853 END IF
21860 REM:.....
21871 REM
21880 REM
21889 REM          XXXXXXXX  SCREEN  XXXXXXXX
21890
21900
21910 OUTPUT 21;"K":
21920 GCLEAR
21930 DEG
21940 LDIR 0
21950 LINE TYPE 1,5
21960 VIEWPORT 0,200,0,200
21970 WINDOW 0,200,0,200
21979 LORG 5
21980 IF (Code1(1,1))="L" OR (Code1(1,1))="F" OR Code1(1,1)="M" AND (Code2(1,1)
J="C" OR Code2(1,1)="F" OR Code2(1,1)="M") THEN
21997   CSIZE 4,,5
22000   IF Alekos=1 THEN
22010     St_1=Max_diff+ABS(Min_diff)+.8
22020     St=ABS(Min_diff-.4)*.60/St_1+.25
22030   ELSE
22040     St=.5
22051   END IF
22060   MOVE 170,St
22067   LABEL "seconds"
22070   GOTO 22106
22087 ELSE
22096   CSIZE 4,,5
22105   IF Alekos=1 THEN
22114     St_1=Max_diff+ABS(Min_diff)
22123     St=ABS(Min_diff-.4)*.200/St_1+.25
22132   ELSE
22141     St=.5
22150   END IF
22159   MOVE 170,St
22160   LABEL "millimeters"
22177 END IF
22186 IF Alekos=1 THEN
22195   GOTO 22429
22204 ELSE
22213   IF Ans=1 THEN
22222     MOVE 120,190
22231     CSIZE 3,2,.4

```

```

22249 LABEL US: 22249
22249 IMAGE "Residuals from data files : ".#
22249 MOVE 170.190
22267 CSIZE 3..5
22276 LABEL Code1#:" - "Code2#
22285 ELSE
22294 MOVE 170.190
22303 CSIZE 3.2..4
22312 LABEL USING 20301
22321 IMAGE "Residuals from data files : ".#
22330 MOVE 170.190
22339 CSIZE 3..5
22346 LABEL Ep1#(1):" - "Ep2#(1)
22357 kin=190
22366 FOR I=2 TO Mat
22375 kin=kin-7.5
22384 MOVE 170.kin
22393 LABEL Ep1#(I):" - "Ep2#(I)
22402 NEXT I
22411 END IF
22420 END IF
22429 VIEWPORT 5.120,10.70
22438 :
22447 GOSUB Prog_kinon.v
22456 :
22465 GOSUB Prog_kinon.v
22474 :
22483 VIEWPORT 5.120,0.200
22490 WINDOW 0,125,0.200
22501 IF Me=2 OR (Me=2 AND Mit=3) THEN
22510 Be="
22519 De="
22528 ELSE
22537 IF Me=2 AND Mit=1 THEN
22546 Ae=ABS(Tim_1-C1)-ABS(A1-C1)
22555 Be=Ae/C1
22564 De=0
22573 ELSE
22582 IF Me=2 AND Mit=2 THEN
22591 Ae=ABS(Tim_1-C1)-ABS(A1-C1)
22600 Be=Ae/C1
22609 Ce=(Tim_r+C1)-(A2+C1)
22618 De=Ce/C1
22627 ELSE
22636 IF Me=2 AND Mit=4 THEN
22645 Be=0
22654 Ce=(Tim_r+C1)-(A2+C1)
22663 De=Ce/C1
22672 END IF
22681 END IF
22690 END IF
22699 END IF
22708 X2=.25/(Be*(Nois+1)+(Nois+1)*De)
22717 IF Me=3 THEN
22726 GOTO 22933
22735 END IF
22744 IF Alekos=1 THEN
22753 GOTO 22933
22762 END IF
22771 REM-----

```

```

22240 LABEL USING 22249
22249 IMAGE "Residuals from data files : ".0
22250 MOVE 170,190
22267 CSIZE 3,5
22276 LABEL Code1#:" - "iCode2#
22285 ELSE
22294 MOVE 170,190
22303 CSIZE 3,2,4
22312 LABEL USING 22311
22321 IMAGE "Residuals from data files : ".0
22330 MOVE 170,190
22339 CSIZE 3,5
22348 LABEL Ep1#(1):" - "iEp2#(1)
22357 kin=190
22366 FOR i=1 TO Met
22375 kin=kin+7.5
22384 MOVE 170,kin
22393 LABEL Ep1#(1):" - "iEp2#(1)
22402 NEXT i
22411 END IF
22420 END IF
22429 VIEWPORT 5,170,10,70
22438 '
22447 GOSUB Parathiro
22456 '
22465 GOSUB Meg_alona.v
22474 '
22483 VIEWPORT 5,130,0,200
22492 WINDOW 0,125,0,200
22501 IF Me>2 OR (Me=2 AND Mit=3) THEN
22510 Re=0
22519 De=0
22528 ELSE
22537 IF Me=2 AND Mit=1 THEN
22546 Ae=ABS(Tim_1-C1)-ABS(A1-C1)
22555 Be=Ae/C1
22564 De=0
22573 ELSE
22582 IF Me=2 AND Mit=2 THEN
22591 Ae=ABS(Tim_1-C1)-ABS(A1-C1)
22600 Re=Ae/C1
22609 Ce=(Tim_r+C1)-(A2+C1)
22618 De=Ce/C1
22627 ELSE
22636 IF Me=2 AND Mit=4 THEN
22645 Be=0
22654 Ce=(Tim_r+C1)-(A2+C1)
22663 De=Ce/C1
22672 END IF
22681 END IF
22690 END IF
22699 END IF
22708 X2=125/(Be*(Noin1+1)*(Noinr+1)+De)
22717 IF Me=3 THEN
22726 GOTO 22933
22735 END IF
22744 IF Alekos=1 THEN
22753 GOTO 22933
22762 END IF
22771 REM-----

```

```

22780 LORG 5
22789 MOVE X2*(Be+Noinl+.5),+10
22798 IDRAW 0,-3
22807 MOVE X2*(Be+Noinl+.5-St dev_o/C1),+10
22816 IDRAW 0,-3
22825 IMOVE 2*X2*(St dev_o/C1),0
22834 IDRAW 0,+3
22843 IMOVE 2,-1.5
22852 IDRAW (-2-(1/3)*X2*(St dev_o/C1)),0
22861 IMOVE (-((1/6)*X2*(St dev_o/C1)),0
22870 LABEL "S"
22879 IMOVE (-((1/6)*X2*(St dev_o/C1)),+6
22888 IDRAW (-((2/3)*X2*(St dev_o/C1)),0
22897 IMOVE (-((1/6)*X2*(St dev_o/C1)),0
22906 LABEL "S"
22915 IMOVE (-((1/6)*X2*(St dev_o/C1)),+6
22924 IDRAW (-((1/3)*X2*(St dev_o/C1)-2),0
22933 REM-----
22942 LORG 6
22951 IF Alekos=1 THEN
22960 St_1=Max diff+ABS(Min diff)*.8
22969 St=ABS(Min diff-.4)*60/St_1+50
22978 ELSE
22987 St=.20
22996 END IF
23005 MOVE X2*(2*(Noinl+.5),St
23014 IF (Noinl+Noinr)=17 THEN
23023 CSIZE 2.8,.5
23032 ELSE
23041 IF (Noinl+Noinr) 17 AND (Noinl+Noinr)<=25 THEN
23050 CSIZE 2.6,.3
23059 ELSE
23068 CSIZE 2.9,.2
23077 END IF
23086 END IF
23095 REM:.....
23104 REM LABELS
23113 REM:.....
23122 REM
23131 REM
23140 REM ----- LABEL X-AXIS -----
23149 !
23158 !
23167 IF Max>3 THEN
23176 LABEL "0"
23185 ELSE
23194 LABEL "X"
23203 END IF
23212 FOR I=X2*(Be+.5) TO X2*(Be+Noinl+.5-.01) STEP X2
23221 IF I=X2*(Be+.5) THEN
23230 MOVE I,St
23239 I1=I1-C1/2
23248 LABEL USING 23257:11
23257 IMAGE 27.D
23266 I1=I1+C1
23275 ELSE
23284 MOVE I,St
23293 LABEL USING 23302:11
23302 IMAGE 27.D
23311 I1=I1+C1

```

```

23320 END IF
23329 NEXT I
23330 I1=0
23347 FOR I=X2*(Be*Noim1+1.5) TO X2*(Be*Noim1+Noimr+1.5) STEP X2
23356 IF I=X2*(Be*Noim1+1.5) THEN
23365 MOVE I,St
23374 LABEL USING 23383:C1
23383 IMAGE 2,D
23392 I1=2*C1
23401 ELSE
23410 MOVE I,St
23419 LABEL USING 23428:11
23428 IMAGE 2,D
23437 I1=11*C1
23446 END IF
23455 NEXT I
23464 I1=A1
23473 REM ----- LABEL Y-AXIS -----
23482
23491
23500 VIEWPORT 5,120,0,10.70
23509
23518 GOSUB Farathird
23527
23536 LORG 0
23545 CSIZE 2,5,1,5
23554
23563 GOSUB Avonas_v
23572
23581 DEG
23590 LDIR 90
23599 VIEWPORT 5,120,0,200
23608 WINDOW 0,125,0,200
23617 CSIZE 3,5,1,4
23626 IF A1kos=1 THEN
23635 MOVE 120,20,St+60
23644 LABEL "Theor. - Obser."
23653 GOTO 26497
23662 ELSE
23671 MOVE 120,10,120
23680 LABEL "No. of Residuals"
23689 GOTO 25939
23698 END IF
23707 REM XXXXXXXXXXXXX
23716 REM
23725 REM
23734 REM XXXXXXXX PLOTTER XXXXXXXX
23743
23752
23761 IF A1kos=1 THEN
23770 PRINT USING 23779
23779 IMAGE 9,10X,"Put the BLACK PEN in the position of the PEN 1."
23788
23797 GOSUB Carry_on
23806
23815 GOTO 24813
23824 END IF
23833 PRINT USING 23842
23842 IMAGE 6,10X,"For the images of the results of the running program",2,331
,"S 1 X",2,101, "different colours will be used to ally ."

```

```

23851 :
23868 GOSUB Carry_on
23869 :
23878 PRINT USING 23887
23887 IMAGE 5/.10X,"If your plotter has only 4 pens, read the following"/.10
X,"instructions..."
23896 PRINT USING 23905
23905 IMAGE /.10X,"Otherwise, (if there are more or less available pens)..."
23914 PRINT USING 23923
23923 IMAGE 10X,"tions for the pens) you have to go through the program"/.10X,"
and to change the commands, which are referred for the"/.10X,"pens..."
23932 :
23941 GOSUB Carry_on
23950 :
23959 PRINT USING 23968
23968 IMAGE 4/.8X,"I suggest you that you choose the following pens for plotting
..."
23977 PRINT USING 23986
23986 IMAGE 2/.29X,"PEN 1 : Black colour"/.2/.29X,"PEN 2 : Red colour"/.2/.29X,"
PEN 3 : Green colour"/.2/.29X,"PEN 4 : Blue colour"
23995 :
24004 GOSUB Carry_on
24013 :
24020 PLOTTER IS 705,"HFGL"
24031 GRAPHICS ON
24040 GCLEAR
24049 LINE TYPE 1.5
24058 PEN 1 : Black pen
24067 VIEWPORT 3,134,9,86
24076 FRAME
24085 DEG
24094 LDIR 0
24103 WINDOW 0,130,10,100
24112 LOPC "
24121 IF (Code18(1,1)="C" OR Code18(1,1)="F" OR Code18(1,1)="M") AND (Code28(1,1)
1="C" OR Code28(1,1)="F" OR Code28(1,1)="M") THEN
24130 CSIZE 2.5
24139 IF Abs(xos)=1 THEN
24148 St=Max diff+ABS(Min diff)+.8
24157 St=ABS(Min diff)-.4+.57/St 1+12
24166 ELSE
24175 St=14
24184 END IF
24193 MOVE 110,St
24202 LABEL "seconds"
24211 GOTO 24319
24220 ELSE
24229 CSIZE 2.5
24238 IF Abs(xos)=1 THEN
24247 St=Max diff+ABS(Min diff)+.8
24256 St=ABS(Min diff)-.4+.57/St 1+12
24265 ELSE
24274 St=14
24283 END IF
24292 MOVE 100,St
24301 LABEL "millimeters"
24310 END IF
24315 IF Abs(xos)=1 THEN
24328 GOTO 24500
24337 ELSE

```

```

24346 IF Aa=1 THEN
24355 MOVE 90,95
24364 PEN 3 ' Green pen
24373 CSIZE 3..5
24382 LABEL USING 24391
24391 IMAGE "Residuals from data files : ".0
24400 MOVE 120,95
24409 CSIZE 2..5
24418 LABEL Code1;" - ":Code2#
24427 ELSE
24436 MOVE 90,95
24445 PEN 3 ' Green pen
24454 CSIZE 3..5
24463 LABEL USING 24472
24472 IMAGE "Residuals from data files : ".0
24481 MOVE 120,95
24490 CSIZE 2..5
24499 LABEL Ep1;" - ":Ep2#(1)
24508 Kin=95
24517 FOR I=2 TO Met
24526 Parathird=I
24535 MOVE 120,Kin
24544 LABEL Ep1;" - ":Ep2#(I)
24553 NEXT I
24562 END IF
24571 END IF
24580 PENUP
24589 VIEWPORT 8,120,17,74
24598 '
24607 GOSUB Parathird
24616 '
24625 PEN 1 ' Black pen
24634 '
24643 GOSUB Meo_axona_v
24652 '
24661 VIEWPORT 8,120,8,100
24670 WINDOW 8,100,8,100
24679 IF Me=2 OR (Me=2 AND Wit=3) THEN
24688 Be=0
24697 De=0
24706 ELSE
24715 IF Me=2 AND Wit=1 THEN
24724 Ae=ABS(Tim-1-C1)-ABS(A1-C1)
24733 Be=Ae/C1
24742 De=0
24751 ELSE
24760 IF Me=2 AND Wit=2 THEN
24769 Ae=ABS(Tim-1-C1)-ABS(A1-C1)
24778 Be=Ae/C1
24787 Ce=(Tim-r+C1)-(A2+C1)
24796 De=Ce/C1
24805 ELSE
24814 IF Me=2 AND Wit=4 THEN
24823 Be=0
24832 Ce=(Tim-r+C1)-(A2+C1)
24841 De=Ce/C1
24850 END IF
24859 END IF
24868 END IF
24877 END IF

```

```

24886 X2=100/(Be*(Noin)+1)*(Noinr+1)*De)
24895 IF Me=3 THEN
24904 GOTO 25111
24913 END IF
24922 IF Al+pos=1 THEN
24931 GOTO 25111
24940 END IF
24949 REM-----
24956 LORG 5
24967 MOVE X2*(Be*Noin1+.5)+.14
24976 IDRAW 0,-2
24985 MOVE X2*(Be*Noin1+.5-St_dev_o/C1)+.14
24994 IDRAW 0,-2
25003 IMOVE 2*X2*(St_dev_o/C1),0
25012 IDRAW 0,+2
25021 IMOVE 1,-1
25030 IDRAW (-1-C1/C)*X2*(St_dev_o/C1),0
25039 IMOVE (-1/C)*X2*(St_dev_o/C1),0
25048 LABEL "v"
25057 IMOVE (-1/C)*X2*(St_dev_o/C1),+2
25066 IDRAW (-1-C1/C)*X2*(St_dev_o/C1),0
25075 IMOVE (-1/C)*X2*(St_dev_o/C1),0
25084 LABEL "w"
25093 IMOVE (-1/C)*X2*(St_dev_o/C1),+2
25102 IDRAW (-1-C1/C)*X2*(St_dev_o/C1)-1,0
25111 REM-----
25120 LORG 6
25129 IF Al+pos=1 THEN
25138 St 1=Max diff*ABS(Min diff)+.8
25147 St=ABS(Min diff-.4)*57/St 1+.16
25156 ELSE
25165 St=.17
25174 END IF
25183 MOVE X2*(Be*Noin1+.5),St
25192 IF (Noin1+Noinr)<17 THEN
25201 CSIZE 1.5,.5
25210 ELSE
25219 IF (Noin1+Noinr)>17 AND (Noin1+Noinr)<=25 THEN
25228 CSIZE 1.8,.2
25237 ELSE
25246 CSIZE 1.8,.2
25255 END IF
25264 END IF
25273 REM:|||||
25282 REM LABELS
25291 REM:|||||
25300 REM
25309 REM
25318 REM LABEL X-AXIS
25327 "
25336 "
25345 IF Me=3 THEN
25354 LABEL "0"
25363 ELSE
25372 LABEL "v"
25381 END IF
25390 PENUP
25399 FOR I=X2*(Be+.5) TO X2*(Be+Noin1+.5-.01) STEP X2
25408 IF I=X2*.5 THEN
25417 MOVE 1,St

```

```

25426      I1=I1-C1/2
25425      LABEL USING 25444:I1
25444      IMAGE 27.D
25453      I1=I1+C1
25462      ELSE
25471      MOVE 1.5t
25480      LABEL USING 25489:I1
25489      IMAGE 27.D
25498      I1=I1+C1
25507      END IF
25516      NEXT I
25525      I1=0
25534      FOR I=X2*(Be+Noin1+1.5) TO X2*(Be+Noin1+Noinr+1.6) STEP X2
25543      IF I=X2*(Noin1+1.5) THEN
25552      MOVE 1.5t
25561      LABEL USING 25570:C1
25570      IMAGE 7.D
25579      I1=2*C1
25588      ELSE
25597      MOVE 1.5t
25606      LABEL USING 25615:I1
25615      IMAGE 7.D
25624      I1=I1+C1
25633      END IF
25642      NEXT I
25651      I1=A1
25660      REM ----- LABEL Y-AXIS -----
25669      '
25678      '
25687      VIEWPORT 8.120,17.74
25696      '
25705      GOSUB Parathiro
25714      '
25723      LORG 0
25732      CSIZE 1.5..5
25741      '
25750      GOSUB Axonas_v
25759      '
25768      DEG
25777      LDIR 90
25786      VIEWPORT 8.120,3.100
25795      WINDOW 0.100,0.100
25804      CSIZE 2..5
25813      IF A1exs=1 THEN
25822      MOVE 12*.20,St+25
25831      LABEL "Theor. - Obser."
25840      PENUP
25849      GOTO 26497
25858      ELSE
25867      MOVE 2.55
25876      LABEL "No. of Residuals"
25885      GOTO 25939
25894      END IF
25903      PENUP
25912      REM
25921      REM
25930      REM
25939      REM:||||| HISTOGRAMS |||||
25948      '
25957      '

```

```

25966 IF Ap$[1,1]=""S" THEN
25975 VIEWPORT 5,110,10,70
25984
25993 GOSUB Parathirdo
26002
26011 ELSE ( IF Ap$[1,2]=""PL" )
26020 VIEWPORT 8,120,17,74
26029
26038 GOSUB Parathirdo
26047
26056 PEN 0
26065 PRINT USING 26074
26074 IMAGE 9,101,"Put the ORANGE PEN in the position of the PEN 1 ."
26083
26092 GOSUB Carry_on
26101
26110 PEN 1 Orange pen
26119 END IF
26128 Y=0
26137 FOR I=(Noim[*5]*(C1*100) TO Noim*(C1*100) STEP C1*100
26146 MOVE I,0
26155 Y=Y+1
26164 IDRAW 0,Obs_fr_n_draw(Y)
26173 IDRAW (C1*100),0
26182 IDRAW 0,-Obs_fr_n_draw(Y)
26191 NEXT I
26200
26209 REM::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
26218
26227
26236 LINE TYPE 5
26245 Q=0
26254 FOR I=(Noim)*C1*100 TO (Noim+1)*(C1*100) STEP (C1*100)
26263 Q=Q+1
26272 IF Q=(Noim+Noim+1)*1 THEN
26281 GOTO 26452
26290 END IF
26299 IF I=(Noim*C1*100) THEN
26308 MOVE I,0
26317 PEN 3 Green pen
26326 IDRAW C1*100,Obs_fr_n_draw(Q)
26335 GOTO 26443
26344 END IF
26353 Dif1=Obs_fr_n_draw(Q-1)-Obs_fr_n_draw(Q)
26362 IF Dif1>0 THEN
26371 IDRAW C1*100,-Dif1
26380 ELSE
26389 IF Dif1<0 THEN
26398 IDRAW C1*100,-Dif1
26407 ELSE
26416 IDRAW C1*100,0
26425 END IF
26434 END IF
26443 NEXT I
26452 PENUP
26461 GOTO 27172
26470 REM::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
26479 REM
26488 REM
26497 REM:::::::: DIFFERENCES BETWEEN THEORETICAL AND OBSERVED VALUES ::::::::::

```

```

26506
26515
26524 IF Ap#.1.1)="S" THEN
26533 VIEWPORT 5.130,10.70
26542
26551 GOSUB Parathird
26560
26569 ELSE ' ( IF Ap#(1.2)="PL" )
26578 VIEWPORT 8.120,17.74
26587
26596 GOSUB Parathird
26605
26614 PEN ' Red pen
26623 END IF
26632 Car_1= 5-(A1+C1/2)
26641 Car_1= Car_1/2*(A1+C1/2)*100
26650 MOVE Car_1,Diff(1)
26659 Diff_2=ABS(Car_1)-ABS((A1+C1/2)*100)
26668 IF Diff(2)=0 THEN
26677 Diff_22=Diff(2)-Diff(1)
26686 IDRAW Diff_2,Diff_22
26695 ELSE
26704 Diff_22=ABS(Diff(2))-Diff(1)
26713 IDRAW Diff_2,-Diff_22
26722 END IF
26731 Metr=1
26740 FOR I=-(NoIn)-1)*C1*100 TO (NoIn)*C1*100 STEP (C1*100)
26749 Metr=Metr+1
26758 IF Metr=(NoIn+NoIn+2) THEN
26767 GOTO 25615
26776 END IF
26785 IF I=-(NoIn)-1)*C1*100 THEN
26794 MOVE 1,Diff(Metr)
26803 GOTO 27064
26812 END IF
26821 IF (Diff(Metr-1)>0 AND Diff(Metr)>0) OR (Diff(Metr-1)<0 AND Diff(Metr)<0) THEN
26830 Diff_1=Diff(Metr-1)-Diff(Metr)
26839 IF Diff_1>0 THEN
26848 IDRAW C1*100,-Diff_1
26857 ELSE
26866 IF Diff_1<0 THEN
26875 IDRAW C1*100,-Diff_1
26884 ELSE
26893 IDRAW C1*100,0
26902 END IF
26911 END IF
26920 ELSE
26929 IF (Diff(Metr-1)>0 AND Diff(Metr)<0) OR (Diff(Metr-1)<0 AND Diff(Metr)
>0) THEN
26938 Diff_1=ABS(Diff(Metr-1))+ABS(Diff(Metr))
26947 IF Diff(Metr-1)>0 AND Diff(Metr)>0 THEN
26956 IDRAW C1*100,-Diff_1
26965 ELSE
26974 IF Diff(Metr-1)<0 AND Diff(Metr)>0 THEN
26983 IDRAW C1*100,Diff_1
26992 ELSE
27000 IF ABS(Diff(Metr-1))=ABS(Diff(Metr)) THEN
27010 IDRAW C1*100,0
27019 END IF

```

```

26506
26515
26524 IF Apz(1,1)=-S THEN
26533 VIEWPORT 5,100,10,70
26542
26551 GOSUB Farathird
26560
26569 ELSE IF Apz(1,2)=-PL THEN
26578 VIEWPORT 0,120,17,74
26587
26596 GOSUB Farathird
26605
26614 PEN 1 Red pen
26623 END IF
26632 Car_1=5-(A1+C1/2)
26641 Car_1=Car_1/2*(A1+C1/2)*100
26650 MOVE Car_1,Diff(1)
26659 Diff_2=ABS(Car_1)-ABS((A1+C1/2)*100)
26668 IF Diff(2)=0 THEN
26677 Diff_22=Diff(2)-Diff(1)
26686 IDRAW Diff_2,Diff_22
26695 ELSE
26704 Diff_22=ABS(Diff(2))-Diff(1)
26712 IDRAW Diff_2,-Diff_22
26722 END IF
26731 Metr=1
26740 FOR I=-(Noin1-1)*C1*100 TO (Noinr)*(C1*100) STEP (C1*100)
26749 Metr=Metr+1
26758 IF Metr=(Noin1+Noinr+2) THEN
26767 GOTO 25615
26776 END IF
26785 IF I=-(Noin1-1)*C1*100 THEN
26794 MOVE 1,Diff(Metr)
26803 GOTO 27064
26812 END IF
26821 IF (Diff(Metr-1)>0 AND Diff(Metr)>0) OR (Diff(Metr-1)<0 AND Diff(Metr)<0)
26830 THEN
26839 Diff_1=Diff(Metr-1)-Diff(Metr)
26848 IF Diff_1>0 THEN
26857 IDRAW C1*100,-Diff_1
26866 ELSE
26875 IF Diff_1<0 THEN
26884 IDRAW C1*100,-Diff_1
26893 ELSE
26902 IDRAW C1*100,0
26911 END IF
26920 END IF
26929 ELSE
26938 IF (Diff(Metr-1)>0 AND Diff(Metr)<0) OR (Diff(Metr-1)<0 AND Diff(Metr)
26947 >0) THEN
26956 Diff_1=ABS(Diff(Metr-1))-ABS(Diff(Metr))
26965 IF Diff(Metr-1)>0 AND Diff(Metr)<0 THEN
26974 IDRAW C1*100,-Diff_1
26983 ELSE
26992 IF Diff(Metr-1)<0 AND Diff(Metr)>0 THEN
27001 IDRAW C1*100,Diff_1
27010 ELSE
27019 IF ABS(Diff(Metr-1))-ABS(Diff(Metr)) THEN
27028 IDRAW C1*100,0
27037 END IF

```

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```

27568     END IF
27577     IF Tim_1<(A1-C1) AND Tim_r>A2+C1 THEN
27586         WINDOW (A1-C1)*100,(Tim_r+C1)*100,Min_diff+.4,Max_diff+.4
27595     END IF
27604     END IF
27613     ELSE
27622         Th_fr_e_max=Th_fr_e(1)
27631         Th_fr_e_max=Th_fr_e(1)
27640         FOR I=2 TO Metr
27649             IF Th_fr_e(1)>Th_fr_e_max THEN
27658                 Th_fr_e_max=Th_fr_e(1)
27667             ELSE
27676                 GOTO 27694
27685             END IF
27694         NEXT I
27703         IF Th_fr_e_max=Max_sfoen THEN
27712             Max_sfoen_tel=Th_fr_e_max
27721         ELSE
27730             Max_sfoen_tel=Max_sfoen
27739         END IF
27748         '
27757         IF Max_2 THEN
27766             WINDOW (A1-C1)*100,(A2+C1)*100,0,Max_sfoen_tel+.4
27775         ELSE
27784             IF Tim_1<(A1-C1) AND Tim_r>A2+C1 THEN
27793                 WINDOW (Tim_1-C1)*100,(A2+C1)*100,0,Max_sfoen_tel+.4
27802                 Wit=1
27811             END IF
27820             IF Tim_1<(A1-C1) AND Tim_r>A2+C1 THEN
27829                 WINDOW (Tim_1-C1)*100,(Tim_r+C1)*100,0,Max_sfoen_tel+.4
27838                 Wit=2
27847             END IF
27856             IF Tim_1<(A1-C1) AND Tim_r>A2+C1 THEN
27865                 WINDOW (A1-C1)*100,(A2+C1)*100,0,Max_sfoen_tel+.4
27874                 Wit=3
27883             END IF
27892             IF Tim_1<(A1-C1) AND Tim_r>A2+C1 THEN
27901                 WINDOW (A1-C1)*100,(Tim_r+C1)*100,0,Max_sfoen_tel+.4
27910                 Wit=4
27919             END IF
27928         END IF
27937     END IF
27946     RETURN
27955     '
27964     REM/////////XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
27973     '
27982     '
27991     REM=====SUBROUTINE      Meg_axona_v
28000     REM
28009     REM
28018     REM
28027     STOP
28036     Meg_axona_v:
28045     '
28054     '
28063     IF Alpha=1 THEN
28072         AXIS C1=100/2.1
28081         GOTO 28014
28090     END IF
28099     IF Max_sfoen_tel=10 THEN

```

Appendix G. "HI_DI_TEST" PROGRAM

```

28648      MOVE 0.1
28657      LABEL I
28666      NEXT I
28675      ELSE
28684      IF Max_mfoen_tel < 10 AND Max_mfoen_tel < 20 THEN
28693      FOR I=2 TO Max_mfoen_tel STEP 2
28702      MOVE 0.1
28711      LABEL I
28720      NEXT I
28729      ELSE
28738      IF Max_mfoen_tel < 20 AND Max_mfoen_tel < 100 THEN
28747      FOR I=5 TO Max_mfoen_tel STEP 5
28756      MOVE 0.1
28765      LABEL I
28774      NEXT I
28783      ELSE
28792      IF Max_mfoen_tel < 100 AND Max_mfoen_tel < 200 THEN
28801      FOR I=10 TO Max_mfoen_tel STEP 10
28810      MOVE 0.1
28819      LABEL I
28828      NEXT I
28837      ELSE
28846      IF Max_mfoen_tel < 200 AND Max_mfoen_tel < 500 THEN
28855      FOR I=25 TO Max_mfoen_tel STEP 25
28864      MOVE 0.1
28873      LABEL I
28882      NEXT I
28891      ELSE
28900      IF Max_mfoen_tel < 500 AND Max_mfoen_tel < 1000 THEN
28909      FOR I=50 TO Max_mfoen_tel STEP 50
28918      MOVE 0.1
28927      LABEL I
28936      NEXT I
28945      ELSE
28954      IF Max_mfoen_tel < 1000 AND Max_mfoen_tel < 2000 THEN
28963      FOR I=100 TO Max_mfoen_tel STEP 100
28972      MOVE 0.1
28981      LABEL I
28990      NEXT I
28999      ELSE
29008      IF Max_mfoen_tel < 2000 AND Max_mfoen_tel < 10000 THEN
29017      FOR I=500 TO Max_mfoen_tel STEP 500
29026      MOVE 0.1
29035      LABEL I
29044      NEXT I
29053      ELSE
29062      IF Max_mfoen_tel < 10000 THEN
29071      FOR I=1000 TO Max_mfoen_tel STEP 1000
29080      MOVE 0.1
29089      LABEL I
29098      NEXT I
29107      END IF
29116      END IF
29125      END IF
29134      END IF
29143      END IF
29152      END IF
29161      END IF
29170      END IF
29179      END IF

```

```

29100 RETURN
29197 '
29200 REM/////////XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
29215 '
29224 '
29227 REM/////////XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
29242 REM SUBROUTINE Emc
29251 REM
29260 REM
29269 STOP
29278 End:
29287 '
29296 '
29305 Metr=Metr+1
29314 Th_rel_fr(Metr)=Area
29323 Th_fr_e(Metr)=Area*Obs
29332 Ss=Ss+Th_fr_e(Metr)
29341 Obs_fr_n(Metr)=0
29350 Smi=Smi+0
29359 Div(Metr)=Th_fr_e(Metr)-Obs_fr_n(Metr)
29368 Test_2=Obs_fr_n(Metr)-Th_fr_e(Metr)/2/Th_fr_e(Metr)
29377 Ss=Ss+Test_2
29386 PRINT USING 29395;Th_fr_e(Metr),Obs_fr_n(Metr)
29395 IMAGE S1X,D,DD,13X,1
29404 IF For=1 THEN OUTPUT @Prt USING 29395;Th_fr_e(Metr),Obs_fr_n(Metr)
29413 RETURN
29422 '
29431 REM/////////XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
29440 '
29449 '
29458 REM/////////XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
29467 REM SUBROUTINE Topographos_1
29476 REM
29485 REM
29494 STOP
29503 Topographos_1:
29512 '
29521 '
29530 Metr=Metr+1
29539 Th_rel_fr(Metr)=Area
29548 Th_fr_e(Metr)=Area*Obs
29557 IF Me=3 THEN
29566 IF I=Mo_inv AND Mo_inv=I+0 THEN
29575 Th_fr_e_mean=Th_fr_e(Metr)
29584 ELSE
29593 GOTO 29620
29602 END IF
29611 END IF
29620 Ss=Ss+Th_fr_e(Metr)
29629 B=0
29638 RETURN
29647 '
29656 REM/////////XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
29665 '
29674 '
29683 REM/////////XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
29692 REM SUBROUTINE Topographos_2
29701 REM
29710 REM
29719 STOP

```

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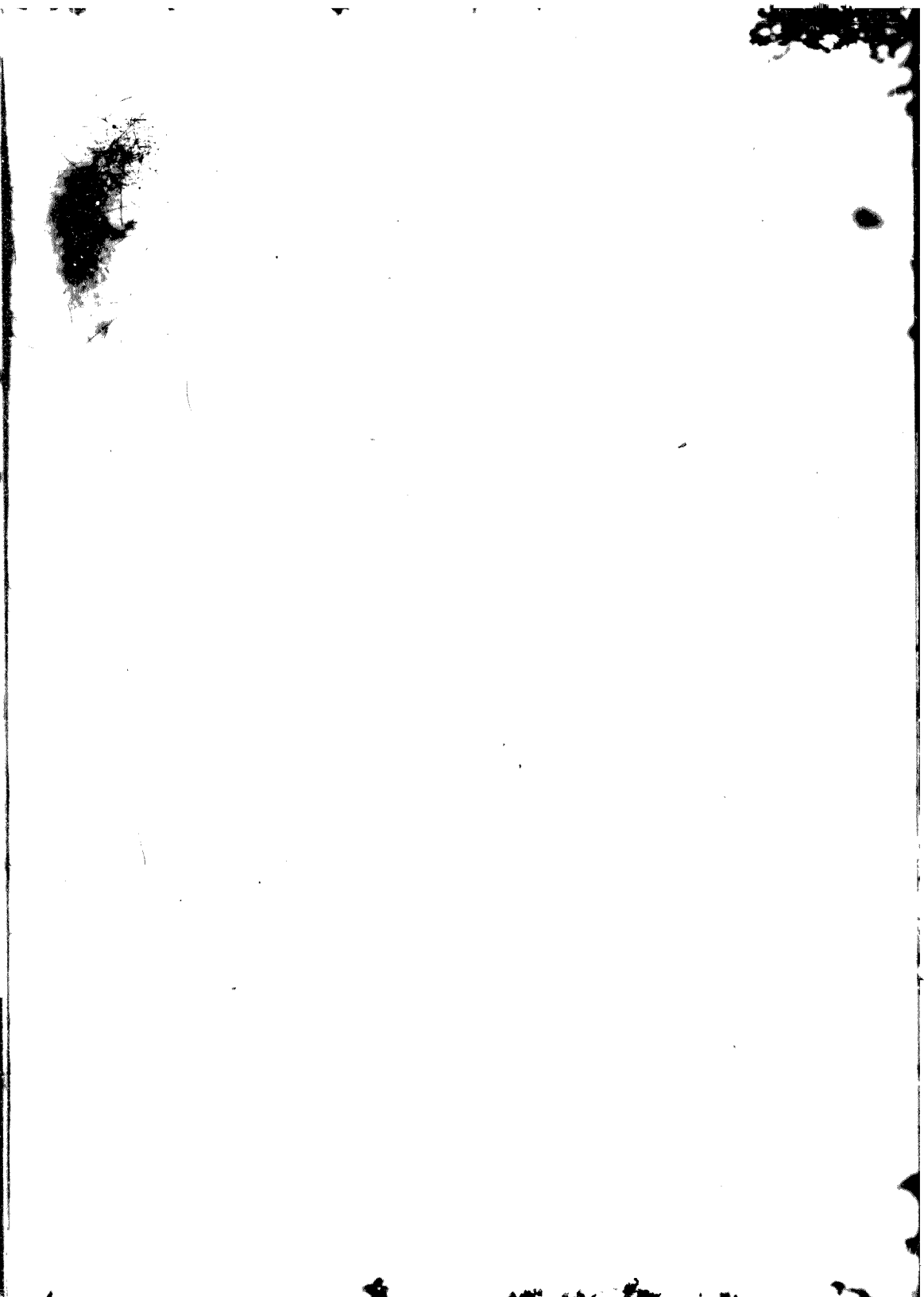
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```

31294 PEN 1
31295 IDRAW -15.0
31302 IDRAW 0.20
31321 IDRAW 15.0
31330 PEN -1
31339 IDRAW -15.-10
31348 PEN 1
31357 IDRAW 5.0
31366 PEN -1
31375 IDRAW 25.-10
31384 PEN 1
31393 IDRAW 0.20
31402 IDRAW 15.-20
31411 IDRAW 0.20
31420 PEN -1
31429 IDRAW 15.-20
31438 PEN 1
31447 IDRAW 0.20
31456 IDRAW 10.0
31465 IDRAW 5.-4
31474 IDRAW 0.-12
31483 IDRAW -5.-4
31492 IDRAW -10.0
31501 WAIT 2
31510 GCLEAR
31519 REM-----
31528 REM
31537 REM
31546 REM-----
31555 REM CLOSE PATHS
31564 REM-----
31573
31582
31591 ASSIGN #Pnt TO *
31600 ASSIGN #Tco TO *
31609 ASSIGN #Res TO *
31618
31627
31636 END

```

Author Albanis Alexander

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