```
1 REM ***************************************************************
2 REM In this version only two changes were made            Dec 2/87
3 REM    - data files are now accesed on default drive and directory
4 REM    - lines 930 & 880 updates to have all input in metric units
5 REM ***************************************************************
6 REM - INTERACTIVE VERSION - DEC. 02/94
7 REM - CAN CHANGE VALUES OF PORADJ AND TEXADJ - FEB. 27/95
10 KEY OFF: CLS  ' MAIN PROGRAM SECTION'
20 DIM PLTDAY!(1000), PLTMON!(1000), PLTVOL!(1000), PLTYR!(1000)
30 DIM ICCD!(50), ICCDELA!(50), ICCA!(50), ICCIV!(50), ICCX!(50), COVER!(50),
CCD!(50), CCA!(50), CCIV!(50), CCT!(50), CCX!(50), CCDELA!(50), CCQ!(50)
40 DIM TOT121!(10), OLD121!(10): ABOUT$ = "FALSE": PLTCNT = 0
REM 41 INPUT "Input file name  =  "; INFILE$
REM 43 INPUT "Output file name =  "; OUTFILE$
45 PRINT "Do you want short output option (ie. No Cooling Canal River Segment"
46 INPUT "Temperatures or Input Data Printout) (Y/N) "; BOFL$
47 IF BOFL$ = "Y" OR BOFL$ = "y" THEN ABOUT$ = "TRUE": GOTO 50
48 IF BOFL$ <> "N" AND BOFL$ <> "n" THEN CLS : GOTO 45
50 OPEN "ice.out" FOR OUTPUT AS #2
51 LOCATE 21, 60: PRINT "Calculating ..."
60 GOSUB 320: GOSUB 210: DONE = 0: KEY(1) ON: PRINT #2, CHR$(12)
70 WHILE (DONE = 0)
80 LOCATE 12, 30: PRINT CURYR; " "; CURMON; " "; CURDAY
90 ON KEY(1) GOSUB 170
100    GOSUB 720: GOSUB 930
110    IF (FLUSH = 1) THEN GOSUB 2690: GOTO 130 ELSE GOSUB 1010
120    IF (ICEPROD = 1) THEN GOSUB 2560
130    GOSUB 1370: GOSUB 510
140 LOCATE 12, 30: PRINT "                                        "
150 WEND
160 GOSUB 2970
170 CLOSE 1: CLOSE 2
180 END
190 REM
200 REM ***********************************************************
210 REM
220 REM subroutine init
230 DIM NDAY(12)
240 FOR I = 1 TO 12: READ NDAY(I): NEXT
250 NPLT = 0: CURDAY = 1: CURMON = STARTSEASON: CURYR = STARTYR
260 GOSUB 1680: SEASONDAY = 1: TEXPLD! = 3! + TEXADJ!: DT! = 3600!: E! = .5 *
PORADJ!
270 TSTEP! = 24! * 60! * 60!: VSCRIT! = VOLADJ! * 500000!
280 RETURN
290 REM
```

```
300 REM ************************************************************
310 REM
320 REM subroutine read control
322 PRINT #2, " Run Date "; DATE$; " Run Time "; TIME$
323 PRINT #2, " ************************************************************"
324 PRINT #2, "  ";
330 OPEN "ice.prn" FOR INPUT AS #1
340 INPUT #1, STARTYR, STARTMON, ENDYR, ENDMON
350 INPUT #1, STARTSEASON, ENDSEASON
360 INPUT #1, QFLUSH!, PORADJ!, TEXADJ!, BDRADJ!, FRDADJ!, VOLADJ!
370 INPUT #1, NCCT, ICCT!, ICOVER!
380 PRINT #2, STARTYR; STARTMON; ENDYR; ENDMON
390 PRINT #2, STARTSEASON; ENDSEASON
400 PRINT #2, QFLUSH!; PORADJ!; TEXADJ!; BDRADJ!; FRDADJ!; VOLADJ!
410 PRINT #2, NCCT; ICCT!; ICOVER!
420 FOR I = 1 TO NCCT
430     INPUT #1, NCC, ICCD!(I), ICCA!(I), CCIV!(I), ICCX!(I), ICCDELA!(I)
440     PRINT #2, NCC; ICCD!(I); ICCA!(I); CCIV!(I); ICCX!(I); ICCDELA!(I)
450     IF (NCC <> I) THEN PRINT #2, "***** WARNING *****>> ERROR IN RIVER
DATA - NCC "; I; CHR$(13); CHR$(10): END
460 NEXT
470 RETURN
480 REM
490 REM ************************************************************
500 REM
510 REM subroutine check time
520 YEAR = CURYR: MONTH = CURMON: GOSUB 3110
530 IF (CURMON = ENDSEASON) AND (CURDAY = DAYINMON) THEN 540 ELSE 580
540 GOSUB 1590: GOSUB 1680: SEASONDAY = 1: CURDAY = 1
550 CURMON = STARTSEASON
560 IF (ENDSEASON >= STARTSEASON) THEN CURYR = CURYR + 1
570 GOTO 630
580 SEASONDAY = SEASONDAY + 1: CURDAY = CURDAY + 1
590 IF (CURDAY > DAYINMON) THEN 600 ELSE 630
600 CURDAY = 1: CURMON = CURMON + 1
610 IF (CURMON > 12) THEN 620 ELSE 630
620 CURMON = 1: CURYR = CURYR + 1
630 IF (CURYR > ENDYR) OR ((CURYR = ENDYR) AND (CURMON > ENDMON)) THEN
640 ELSE 680
640 IF (STARTSEASON <> CURMON) THEN 650 ELSE 670
650 CURMON = ENDMON: CURYR = ENDYR: SEASONDAY = SEASONDAY - 1
660 GOSUB 1580
670 DONE = 1
680 RETURN
690 REM
```

```
700 REM ************************************************************
710 REM
720 REM subroutine readdata
730 REM
740 INPUT #1, YR, MON, DAY, TA!, TDEW!, WIND!, SUN!, QE!, QGFALL!, CODE
741 IF (CODE = 1) THEN INPUT #1, PORADJ!
742 IF (CODE = 2) THEN INPUT #1, TEXADJ!
443 IF (CODE = 3) THEN INPUT #1, PORADJ!, TEXADJ!
750 IYEAR = YR: IMONTH = MON: IDAY = DAY: GOSUB 3180: FIRST = DAYNUM
760 IYEAR = CURYR: IMONTH = CURMON: IDAY = CURDAY: GOSUB 3180: SECOND
= DAYNUM
770 IF (FIRST >= SECOND) THEN 800
780 INPUT #1, YR, MON, DAY, TA!, TDEW!, WIND!, SUN!, QE!, QGFALL!, CODE
781 IF (CODE = 1) THEN INPUT #1, PORADJ!
782 IF (CODE = 2) THEN INPUT #1, TEXADJ!
783 IF (CODE = 3) THEN INPUT #1, PORADJ!, TEXADJ!
790 GOTO 750
800 IF (YR <> CURYR) OR (MON <> CURMON) OR (DAY <> CURDAY) THEN 810 ELSE
830
810 PRINT #2, "***** WARNING *****>> ALL DATA MISSING  FOR  : "; YR; MON;
DAY; CHR$(13); CHR$(10)
820 TA! = -999: TDEW! = -999: WIND! = -999: SUN! = -999: QE! = -999: QGFALL! = -999
830 IF (TA! = -999!) THEN TA! = PREVTA! ELSE PREVTA! = TA!
840 IF (TDEW! = -999!) THEN TDEW! = PREVTDEW! ELSE PREVTDEW! = TDEW!
850 IF (WIND! = -999!) THEN WIND! = PREVWIND! ELSE PREVWIND! = WIND!
860 IF (SUN! = -999!) THEN SUN! = 4!
870 IF (QE! = -999!) THEN QE! = PREVQE! ELSE PREVQE! = QE!
880 IF (QGFALL! = -999!) THEN QGFALL! = QE!
890 RETURN
900 REM
910 REM ************************************************************************
920 REM
930 REM subroutine conv
940 TAIR! = ((9! * TA!) / 5!) + 32!: TD! = ((9! / 5!) * TDEW!) + 32!: QEXPL! = QE!: QGF! =
QGFALL!: WS! = .62137 * WIND!
950 IF (QEXPL! >= QFLUSH!) OR (QGF! >= QFLUSH!) THEN FLUSH = 1 ELSE FLUSH = 0
960 FOR I = 1 TO NCCT: CCQ!(I) = QEXPL!: NEXT
970 RETURN
980 REM
990 REM ************************************************************************
1000 REM
1010 REM boolean function iceprod
1020 ICEPROD = 0: GOSUB 1280: CCT!(1) = TEXPLD!
1030 FOR J = 1 TO 24
1040     FOR I = 2 TO NCCT
```

```
1050       CCV! = CCD!(I) * CCA!(I)
1060       CCT!(I) = (CCV! * CCT!(I) + CCQ!(I) * DT! * CCT!(I - 1) + CSHEMS! * CCA!(I) *
DT! * ETC!) / (CCV! + CCQ!(I) * DT! + CSHEMS! * CCA!(I) * DT!)
1070 IF (CCT!(I) < -.01) THEN CCT!(I) = -.01
1080 NEXT
1090 NEXT
1100 IF (TA! < .1) THEN 1110 ELSE SLS121! = 0: GOTO 1170
1110 IF (BLOCKFLAG = 0) THEN GOSUB 2830
1120 IF (BLOCKFLAG = 1) THEN 1130 ELSE 1170
1130 GOSUB 2440
1140 IF (ACCUMULATEFLAG = 0) THEN 1150 ELSE 1160
1150 IF (DAYSLS! > VSCRIT!) THEN ACCUMULATEFLAG = 1: PRINT #2, "*****
ATTENTION *****>> RIVER CLOSURE AT BOOM."; CHR$(13); CHR$(10) ELSE
BLOCKFLAG = 0
1160 IF (ACCUMULATEFLAG = 1) THEN ICEPROD = 1
1170 FOR I = 1 TO 10
1180   TOT121!(I) = TOT121!(I) + SLS121! - OLD121!(I)
1190 NEXT
1200 FOR I = 10 TO 2 STEP -1
1210   OLD121!(I) = OLD121!(I - 1)
1220 NEXT
1230 OLD121!(1) = SLS121!
1240 RETURN
1250 REM
1260 REM ************************************************************************
1270 REM
1280 REM subroutine heatcalc
1290 GOSUB 1820: GOSUB 2020: DEGDY! = 0! - TA!
1300 IF (DEGDY! < 0!) THEN DEGDY! = 0!
1310 DEGSUM! = DEGSUM! + DEGDY!
1320 WCF! = (6.127001 * SQR(WIND!) + 12.15 - (.3229 * WIND!)) * (33! - TA!)
1330 RETURN
1340 REM
1350 REM ************************************************************************
1360 REM
1370 REM subroutine dayoutput
1371 LOCATE 21, 60: PRINT "Writing ...     "
1380 PRINT #2, "    DATE (year/mon/day)  :  "; CURYR; "/"; CURMON; "/"; CURDAY; "
AIR  TEMPERATURE  :  "; : PRINT #2, USING "####.#-"; TA: PRINT #2, " "
1385 IF ABOUT$ = "TRUE" THEN 1450
1390 PRINT #2, "    ET    ETC    WCF    CSHE  CSHEMS  CSHEWM    DEGDY  DEGSUM
QEXPL    QGF   PORADJ  TEXADJ"
1400 PRINT #2, USING "####.#- "; ET!; ETC!; WCF!; CSHE!; CSHEMS!; CSHEWM!;
DEGDY!; DEGSUM!; QEXPL!; QGF!; PORADJ!; TEXADJ!: PRINT #2, " "
1410 PRINT #2, "COOLING CANAL RIVER SEGMENTS TEMPERATURE :"
```

```
1420 FOR I = 1 TO 9: PRINT #2, USING "###.##- "; CCT(I); : NEXT: PRINT #2, " "
1430 FOR I = 10 TO 18: PRINT #2, USING "###.##- "; CCT(I); : NEXT: PRINT #2, " "
1440 FOR I = 19 TO 27: PRINT #2, USING "###.##- "; CCT(I); : NEXT: PRINT #2, " "
1441 FOR I = 28 TO 32: PRINT #2, USING "###.##- "; CCT(I); : NEXT: PRINT #2, " "
1450 PRINT #2, " ": PRINT #2, "TOTAL SLUSH GENERATED THIS DAY :              ";
DAYSLS
1460 PRINT #2, "TOTAL SLUSH GENERATED THIS DAY SEGS 1 TO 21 :  "; SLS121
1470 PRINT #2, "TOTAL SLUSH GENERATED TO DATE  :              "; YRSLST: PRINT #2,
" "
1480 PRINT #2, "DAILY TOTAL SLUSH PRODUCED IN SEGS 1 TO 21 FOR LAST
NDAYS": PRINT #2, " "
1490 PRINT #2, "DAY :     1            2            3            4            5"
1500 FOR I = 1 TO 5: PRINT #2, USING "#########.#    "; OLD121(I); : NEXT: PRINT #2, "
": PRINT #2, " "
1510 PRINT #2, "DAY :     6            7            8            9           10"
1520 FOR I = 6 TO 10: PRINT #2, USING "#########.#    "; OLD121(I); : NEXT: PRINT #2, "
"
1530 PRINT #2, " ": PRINT #2, "FRONT OF ICE FIELD TODAY IS AT RIVER SECTION #
"; ICELOC
1540 PRINT #2, " ": PRINT #2,
"--------------------------------------------------------------------------------": PRINT #2, " "
1550 IF (PLTCNT = 3) OR (PLTCNT = 0) THEN NPLT = NPLT + 1: PLTVOL(NPLT) =
ICELOC: PLTDAY(NPLT) = CURDAY: PLTMON(NPLT) = CURMON: PLTYR(NPLT) =
CURYR: PLTCNT = 1 ELSE PLTCNT = PLTCNT + 1
1551 LOCATE 21, 60: PRINT "Calculating ..."
1560 RETURN
1570 REM ************************************************************
1580 REM
1590 REM subroutine SEASONREPT
1600 PRINT #2, "TOTAL DEGREE DAYS FOR SEASON "; DEGSUM!
1610 PRINT #2, "SEASON ENDING "; CURYR; CURMON;
1620 PRINT #2, " HAD "; SEASONDAY; "  DAYS"
1630 PRINT #2, " ": PRINT #2, " "
1640 RETURN
1650 REM
1660 REM ************************************************************
1670 REM
1680 REM subroutine INITSEASON
1690 FOR I = 1 TO NCCT
1700   CCT!(I) = ICCT!: COVER!(I) = ICOVER!: CCD!(I) = ICCD!(I): CCA!(I) = ICCA!(I)
1710   CCX!(I) = ICCX!(I): CCDELA!(I) = ICCDELA!(I)
1720 NEXT
1730 ICELOC = NCCT: YRSLST! = 0!: DAYSLS! = 0!: SLS121! = 0!: BLOCKFLAG = 0:
ACCUMULATEFLAG = 0
1740 BDRICE! = 0!: BDRMAX! = (.5 * CCA!(NCCT)) / 2500!: DEGSUM! = 0!
```

```
1750 FOR I = 1 TO 10
1760   TOT121!(I) = 0!: OLD121!(I) = 0!
1770 NEXT
1780 RETURN
1790 REM
1800 REM ************************************************************
1810 REM
1820 REM subroutine CALCSOLAR
1830 B! = 47.15: C! = 1.74
1840 IYEAR = CURYR: IMONTH = CURMON: IDAY = CURDAY: GOSUB 3180: FIRST =
DAYNUM: IMONTH = 1: IDAY = 1: GOSUB 3180: SECOND = DAYNUM
1850 DAYJUL = FIRST - SECOND + 1
1855 IF (CURMON = 11) THEN A! = 29.46: SSMAX! = 9.03
1860 IF (CURMON = 12) THEN A! = 26.39: SSMAX! = 8.32
1870 IF (CURMON = 1) THEN A! = 29.46: SSMAX! = 8.770001
1880 IF (CURMON = 2) AND (CURDAY < 10) THEN A! = 39.61: SSMAX! = 9.479999 ELSE
IF (CURMON = 2) THEN A! = 52.03: SSMAX! = 10.2
1890 IF (CURMON = 3) THEN A! = 52.03: SSMAX! = 11.9
1900 SSRATIO! = SUN! / SSMAX!
1910 IF (SSRATIO! > 1!) THEN SSRATIO! = 1!
1920 CC! = (1! - SSRATIO!) * 10!
1930 ARG! = (.01717 * DAYJUL + C) * .017453293#
1940 IF CURMON = 3 THEN SRHO! = 9.717 + .1265 * CURDAY ELSE SRHO! = (A! - B! *
SIN(ARG!)) * (24! / 88.114)
1950 SRO! = (1! - .0071 * CC! * CC!) * SRHO!
1960 HS! = SRO! * 87.97799
1970 RETURN
1980 REM
1990 REM
2000 REM ************************************************************************
2010 REM
2020 REM subroutine keidsr
2030 LESP! = TAIR! + 460!: LESP! = LESP! * LESP!: LESP! = LESP! * LESP!
2040 ET! = TD!: FW! = 70! + (.7 * WS! * WS!): HA! = 3.1872E-08 * LESP!: I = 0: DDN = 0
2050 WHILE (DDN = 0)
2060   TSTAR! = (ET! + TD!) / 2!
2070 TST! = TSTAR! * TSTAR!
2080   BETA! = .255 - (8.500001E-03 * TSTAR!) + (.000204 * TST!)
2090   CSHE! = 15.7 + (.26 + BETA!) * FW!
2100   ETP! = (HS! + HA! - 1801!) / CSHE! + (CSHE! - 15.7) * (.26 * TAIR! + BETA! * TD!) /
(CSHE! * (.26 + BETA!))
2110   IF (ABS(ETP! - ET!) < .05) THEN DDN = 1 ELSE IF (I < 50) THEN ET! = ETP!: I = I +
1 ELSE PRINT #2, "***** ATTENTION *****>> DOES NOT CONVERGE"; CURYR;
CURMON; CURDAY; CHR$(13); CHR$(10): DDN = 1
2120 WEND
```

```
2130 ETC! = 5! * (ET! - 32!) / 9!: CSHEWM! = .2364 * CSHE!: CSHEMS! = 5.65E-08 *
CSHE!
2140 RETURN
2150 REM
2160 REM ************************************************************
2170 REM
2180 REM subroutine ICECALCS
2190 CCT!(1) = TEXPLD!
2200 FOR J = 1 TO 24
2210     FOR I = 2 TO NCCT
2220       CCV! = CCD!(I) * CCA!(I)
2230      CCT!(I) = (CCV! * CCT!(I) + CCQ!(I) * DT! * CCT!(I - 1) + CSHEMS! * CCA!(I) *
DT! * ETC!) / (CCV! + CCQ!(I) * DT! + CSHEMS! * CCA!(I) * DT!)
2240 IF (CCT!(I) < -.01) THEN CCT!(I) = -.01
2250 NEXT
2260 NEXT
2270 IF (TA! < .1) THEN 2280 ELSE SLS121! = 0: GOTO 2340
2280 IF (BLOCKFLAG = 0) THEN GOSUB 2830
2290 IF (BLOCKFLAG = 1) THEN 2300 ELSE 2280
2300 GOSUB 2440
2310 IF (ACCUMULATEFLAG = 0) THEN 2320 ELSE 2330
2320 IF (DAYSLS! > 500000!) THEN ACCUMULATEFLAG = 1: PRINT #2, "*****
ATTENTION *****>> RIVER CLOSURE AT BOOM."; CHR$(13); CHR$(10) ELSE
BLOCKFLAG = 0
2330 IF (ACCUMULATEFLAG = 1) THEN GOSUB 2560
2340 FOR I = 1 TO 10
2350   TOT121!(I) = TOT121!(I) + SLS121! - OLD121!(I)
2360 NEXT
2370 FOR I = 10 TO 2 STEP -1
2380   OLD121!(I) = OLD121!(I - 1)
2390 NEXT
2400 OLD121!(1) = SLS121!
2410 RETURN
2420 REM
2430 REM ************************************************************
2440 REM subroutine ICEPRODUCTION
2450 DAYSLS! = 0!: SLS121! = 0!
2460 FOR I = 1 TO NCCT
2470 IF (CCT!(I) < 0!) THEN 2480 ELSE 2520
2480 TSUBF! = 0! - TA!: VFRAZ! = (CSHEWM! * CCA!(I) * TSUBF! * TSTEP!) / (900 *
334000!)
2490 SEGSLS! = (VFRAZ! / E!) * (1 - COVER!(I))
2500 DAYSLS! = DAYSLS! + SEGSLS!
2510 IF (I <= 21) THEN SLS121! = SLS121! + SEGSLS!
2520 NEXT
```

```
2530 RETURN
2540 REM
2550 REM ************************************************************
2560 REM subroutine ICEACCUMULATION
2570 IF (DAYSLS! <= 0!) THEN RETURN
2580 TEMPSLS! = DAYSLS!: YRSLST! = YRSLST! + TEMPSLS!
2590 WHILE (TEMPSLS! > 0!) AND (ICELOC > 1)
2600    CAP! = (1! - COVER!(ICELOC)) * CCIV!(ICELOC)
2610    IF (CAP! > TEMPSLS!) THEN 2620 ELSE 2640
2620    CAP! = CAP! - TEMPSLS!: COVER!(ICELOC) = 1! - CAP! / CCIV!(ICELOC):
TEMPSLS! = 0
2630    GOTO 2650
2640    TEMPSLS! = TEMPSLS! - CAP!: COVER!(ICELOC) = 1: ICELOC = ICELOC - 1
2650 WEND
2660 RETURN
2670 REM
2680 REM ************************************************************
2690 REM subroutine FLUSHRIVER
2700 PRINT #2, "***** ATTENTION *****>> HIGH FLOW  -  ICE FLUSHED FROM
RIVER"; CHR$(13); CHR$(10)
2710 ICELOC = NCCT: YRSLST! = 0!: DAYSLS! = 0!
2720 FOR I = 1 TO NCCT
2730   COVER!(I) = 0!: CCT!(I) = 2!
2740 NEXT
2750 BLOCKFLAG = 0: ACCUMULATEFLAG = 0: BDRICE! = 0!
2760 FOR I = 1 TO 10
2770   TOT121!(I) = 0!
2780   OLD121!(I) = 0!
2790 NEXT
2800 RETURN
2810 REM
2820 REM ************************************************************
2830 REM subroutine block RIVER
2840 IF (CURYR > 1974) OR ((CURYR = 1974) AND (CURMON >= 12)) THEN BDRVEL! =
.0012 * QGF! ELSE BDRVEL! = .0012 * QGF! + .1
2850 BDRICE! = BDRICE! + ((.54 / BDRVEL! ^ 1.5) * DEGDY!) * BDRADJ!
2860 IF (BDRICE! > BDRMAX!) THEN 2870 ELSE 2890
2870 BLOCKFLAG = 1: ACCUMULATEFLAG = 1
2880 PRINT #2, "***** ATTENTION *****>> RIVER CLOSURE DUE TO BORDER ICE.";
CHR$(13); CHR$(10)
2890 IF (BLOCKFLAG = 0) THEN 2900 ELSE 2930
2900 IF (CURYR > 1974) OR ((CURYR = 1974) AND (CURMON >= 12)) THEN DBOOM! =
1.79 + .00259 * QGF!: VBOOM! = 6.150001E-04 * QGF! ELSE DBOOM! = .00457 * QGF!:
VBOOM! = .33 + .000251 * QGF!
2910 FROUDE! = (VBOOM! / SQR(9.8 * DBOOM!)) * FRDADJ!
```

```
2920 IF (FROUDE! <= .08) THEN BLOCKFLAG = 1
2930 RETURN
2940 REM
2950 REM ************************************************************************
2960 REM
2970 REM subroutine print PLOT
2980 PRINT #2, " '1' ICE FRONT PLOT  - THE LOCATION OF THE ICE FRONT EACH
DAY IS REPRESENTED"
2981 PRINT #2, "                    BY THE RIGHT MOST ASTERISK "
2990 PRINT #2, "SECTION #  ";
2991 FOR J = 0 TO 3: PRINT #2, USING "#         "; J; : NEXT: PRINT #2, " "
2992 PRINT #2, "SECTION #  "; : FOR K = 1 TO 4: FOR J = 0 TO 9: PRINT #2, USING "#"; J;
: NEXT J: NEXT K
2993 PRINT #2, " "
3000 FOR I = 1 TO NPLT
3010 PRINT #2, USING "##"; PLTDAY(I); : PRINT #2, USING "###"; PLTMON(I); : PRINT
#2, USING "#####  "; PLTYR(I);
3020 FOR J = 1 TO PLTVOL(I)
3030 PRINT #2, "*";
3040 NEXT
3050 PRINT #2, " "
3060 NEXT
3070 RETURN
3080 REM
3090 REM ************************************************************************
3100 REM
3110 REM subroutine DAYINMON
3120 IF (MONTH = 2) THEN 3130 ELSE 3150
3130 IF (YEAR MOD 4 = 0) THEN DAYINMON = 29 ELSE DAYINMON = 28
3140 RETURN
3150 DAYINMON = NDAY(MONTH): RETURN
3160 REM
3170 REM ************************************************************************
3180 REM FUNCTION DAYNUM
3190 BASEYR = 1952: BASEDY = 1: BASEMT = 1: IDIFF = IYEAR - BASEYR: NDAYS =
IDIFF * 365
3200 LASTYR = IYEAR - 1
3210 FOR IDX = BASEYR TO LASTYR
3220   IF (IDX MOD 4 = 0) THEN NDAYS = NDAYS + 1
3230 NEXT
3240 JMONTH = IMONTH - 1
3250 IF JMONTH <= 0 THEN 3300
3260 FOR IDX = 1 TO JMONTH
3270    YEAR = IYEAR: MONTH = IDX: GOSUB 3110
3280    NDAYS = NDAYS + DAYINMON
```

```
3290 NEXT
3300 NDAYS = NDAYS + IDAY: DAYNUM = NDAYS
3310 RETURN
3320 DATA 31,27,31,30,31,30,31,31,30,31,30,31
```