ANNEXURE 7.1

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C     PROGRAMME FOR COMPUTING EVAPOTRANSPIRATION USING PENMEN'S METHOD.

      COMMON/E/RHMAX(52),UDAY(52),UNIT(52),C(52)
      DIMENSION TMAX(52),TMIN(52),TMEANC(52),FT(52),ED(52),W(52),EDF(52)
     1,FSUN(52),RNL(52),EA(52),RA(52),U(52),FU(52),U2(52),RHMIN(52),RN(5
     22),ETO(52),RNS(52),R(52),ACTUN(52),STATION(6),POSMXN(52),V(52),RS(
     352)
      OPEN(UNIT=1,FILE='GEN.DAT',STATUS='OLD')
C     FILE GEN.DAT CONTAINES DATA OF NO. OF YEARS AND VALUES OF RESPECTIVE YEARS.
      OPEN(UNIT=2,FILE='SUN.DAT',STATUS='OLD')
      OPEN(UNIT=3,FILE='TMAX.DAT',STATUS='OLD')
      OPEN(UNIT=4,FILE='RHMAX.DAT',STATUS='OLD')
      OPEN(UNIT=5,FILE='RHMIN.DAT',STATUS='OLD')
      OPEN(UNIT=6,FILE='WIND.DAT',STATUS='OLD')
      OPEN(UNIT=7,FILE='TMIN.DAT',STATUS='OLD')
      OPEN(UNIT=8,FILE='U3.DAT',STATUS='OLD')
      OPEN(UNIT=9,FILE='UN.DAT',STATUS='OLD')
      OPEN(UNIT=21,FILE='PEN.OUT',STATUS='NEW')
      READ(1,3)NO
C     NO=NUMBER OF STATIONS FOR WHICH THE PROGRAMME IS TO BE RUN
 1    FORMAT(1X,68(1H-))
 2    FORMAT(13F6.2)
 3    FORMAT(I1)
 4    FORMAT(8A4)
 5    FORMAT(13F6.3)
 6    FORMAT(13F6.1)
 11   FORMAT(9X,'       ETo RESULTS WITH MODIFIED PENMEN    METHOD ',//
     1,10X,54(1H-),//,1X,6A4,'LON.: ',F6.2,', LAT. : ',F6.2,'  ALTITUDE
     2: ',F6.2,//,78(1H-),//)
 12   FORMAT ( 1X,'WEEK',1X,'ADJUSTMENT',1X, 'WEIGHING',1X,'    NET    ',
     11X,'  WIND  ',1X,' VAPOUR ',1X,'EVAPOTRANSPIRATION',/1X,' NO.',1X
     2,'  FACTOR  ',1X,' FACTOR ',1X,'RADIATION ',1X,'FUNCTION ',1X,'PRE
     3SURE ',1X,'     RATE        ',1X,/6X,'    C     ',1X,'    W    ',1X
     4,'     Rn    ',1X,'   f(u)  ',10X,'      ETo          ',/,46X,
     5'(ea-ed)  ',1X,'     mm/day   ',/,78(1H-)//)
 13   FORMAT(2X,I2, 3X,F6.2,4X,F6.2,4X,F6.2,5X,F5.3,4X,F6.2,8X,F6.2)
 14   FORMAT (' READING A LINE ')
 15   FORMAT(2X,'                  COMPUTER READIND DATA ... ' )
 16   FORMAT (' COMPUTER IS THINKING ! !! ')
 17   FORMAT('               DOING ANALYSIS, PLEASE WAIT  ....  !!! ')
 18   FORMAT(//////)
 19   FORMAT(' NEXT THINKING GOING ON  ..... ! ')
 20   FORMAT ('             HIGHER LEVEL THINKING, DO NOT DISTURB ')
 45   FORMAT(10X, ' JOB COMPLETED ')
      DO 100 INO=1,NO
      WRITE(*,15)
      READ(1,4)(STATION(I),I=1,6)
      WRITE(*,14)
C     STATION(I)= NAME OF STATION FOR WHICH PROGRAMME IS TO RUN
      READ(1,2) ALATI,ALONGI,ALTI
C     ALATI= LATITUDE, ALONGI= LONGITUDE, ALTI= ALTITUDE OF THE PLACE
      READ(2,2)(ACTUN(I),I=1,52)
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C     ACTUN(I)= ACTUAL SUN SHINE HOURS FOR Ith WEEK
      READ(3,2)(TMAX(I),I=1,52)
      READ(7,2)(TMIN(I),I=1,52)
C     TMAX(I)=WEEKLY MEAN MAXIMUM TEMPERATURE FOR Ith WEEK (C)
C     TMIN(I)=WEEKLY MEAN MINIMUM TEMPERATURE FOR Ith WEEK (C)
C     TMEANC(I) = MEAN TEMPERATURE OF Ith WEEK IN CENTIGRADE
      READ(4,2)(RHMAX(I),I=1,52)
C     RHMAX(I)= MAXIMUM RELATIVE HUMIDITY % FOR Ith WEEK
      READ(5,2)(RHMIN(I),I=1,52)
C     RHMIN(I) = MINIMUM RELATIVE HUMIDITY % FOR Ith WEEK
      READ(8,2)(U(J),J=1,52)
C     U(J)= WIND VELOCITY AT 3 m HEIGHT, IN km/day
      READ(6,5)(UDAY(I),I=1,52)
C     UDAY(I)= WIND VELOCITY DURING DAY IN m/sec FOR Ith WEEK
      READ(9,5)(UNIT(J),J=1,52)
C     FILE UN.DAT CONTAINS WIND VELOCITY DATA (m/sec) DURING NIGHT TIME.
C     FILE UD.DAT CONTAINS WIND VELOCITY DATA (m/sec) DURING DAY TIME.
      DO 81 J=1,52
      TMEANC(J)=(TMAX(J)+TMIN(J))/2.0
      T= TMEANC(J)
      U2(J)=U(J)*0.93
      FU(J)=0.27*(1.0+U2(J)/100.0)
      R(J)=(RHMAX(J)+RHMIN(J))/2.0
      EA(J)=5.99056+0.481513*T+0.0112532*T*T+0.00041249*T*T*T
      ED(J)=EA(J)*R(J)/100.0
      EDF(J)=0.34-0.044*SQRT(ED(J))
 81   CONTINUE
      CALL DFT(TMEANC,FT)
      WRITE(*,16)
      CALL RAD(ALATI,RA)
      WRITE(*,19)
      CALL MAXPN(ALATI,POSMXN)
      DO 201 II=1,52
      RS(II)= RA(II) * ( 0.25+ 0.5 * ACTUN(II) / POSMXN(II) )
      FSUN(II)=0.1+0.9*ACTUN(II)/POSMXN(II)
      RNL(II)=FT(II)*EDF(II)*FSUN(II)
      RNS(II)=(1.0-0.25)*RS(II)
 201  RN(II)=RNS(II)-RNL(II)
      WRITE(*,20)
      CALL WFACT(ALTI,TMEANC,W)
      WRITE(*,17)
      WRITE(21,11)(STATION(I),I=1,6),ALONGI,ALATI,ALTI
      WRITE(*,42)
 42   FORMAT(5X,'WAIT PLEASE')
      CALL CVALUE(RS)
      DO 83 J=1,52
      ETO(J)=C(J)*(W(J)*RN(J)+(1.0-W(J))*FU(J)*(EA(J)-ED(J)))
 83   V(J)=EA(J)-ED(J)
      WRITE(21,12)
      WRITE(*,43)
 43   FORMAT(5X,'COMPUTER IS BUSY IN CALCULATIONS')
      DO 203 II=1,52
      WRITE(21,13)II,C(II),W(II),RN(II),FU(II),V(II),ETO(II)
 203  CONTINUE
      WRITE(*,44)
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      WRITE(21,1)
44    FORMAT(5X,'PLEASE KEEP PATIENCE')
      WRITE(7,18)
100   CONTINUE
      WRITE(*,45)
      STOP
      END

      SUBROUTINE RAD(ALA,RA)
      DIMENSION RA(52)
      DIMENSION RA1(52),RA2(52)
      IF(ALA.LT.18.0.OR.ALA.GT.26.0) GO TO 1
      IF(ALA.EQ.18.0) GO TO 2
      IF(ALA.GT.18.0.AND.ALA.LT.20.0) GO TO 3
      IF(ALA.EQ.20.0) GO TO 4
      IF(ALA.GT.20.0.AND.ALA.LT.22)GO TO 5
      IF(ALA.EQ.22.0) GO TO 6
      IF(ALA.GT.22.0.AND.ALA.LT.24)GO TO 7
      IF(ALA.EQ.24.0) GO TO 8
      IF(ALA.GT.24.0.AND.ALA.LT.26.0) GO TO 9
      CALL RA26(RA)
      GO TO 999
1     CONTINUE
      WRITE(*,100)
      WRITE(*,101)
100   FORMAT( ' PROGRAMME IS ONLY CAPABLE TO HANDLE THE VALUES OF LATITU
     1DE BETWEEN 18 N TO 26 N ')
101   FORMAT( ' AS LATITUDE VALUE IS OUT OF RANGE, PROGRAMME IS TERMINAT
     1ED NOW. ')
      WRITE(*,102)
102   FORMAT( ' PLEASE, MODIFY DATA & THEN RERUN THE PROGRAMME. ')
      STOP
2     CALL RA18(RA)
      GO TO 999
3     CALL RA18(RA1)
      CALL RA20(RA2)
      ANEW=ALA-18.0
      DO 15 I=1,52
15    RA(I)=RA1(I)+ANEW/2.0*(RA2(I)-RA1(I))
      GO TO 999
 4    CALL RA20(RA)
      GO TO 999
 5    CALL RA20(RA1)
      CALL RA22(RA2)
      ANEW=ALA-20.0
      DO 16 I=1,52
16    RA(I)=RA1(I)+ANEW/2.0*(RA2(I)-RA1(I))
      GO TO 999
 6    CALL RA22(RA)
      GO TO 999
 7    ANEW=ALA-22.0
      CALL RA22(RA1)
      CALL RA24(RA2)
      DO 17 I=1,52
17    RA(I)=RA1(I)+ANEW/2.0*(RA2(I)-RA1(I))
```

```
      GO TO 999
    8 CALL RA24(RA)
      GO TO 999
    9 ANEW=ALA-24.0
      CALL RA24(RA1)
      CALL RA26(RA2)
      DO 18 I=1,52
   18 RA(I)=RA1(I)+ANEW/2.0*(RA2(I)-RA1(I))
  999 RETURN
      END

      SUBROUTINE RA18(RR)
      DIMENSION R(52),RR(52)
      DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
     1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
     2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
     3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
     4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/11.6,11.6,11.6,11.6,12
     5.3,13.0,13.0,13.0,13.8,14.6,14.6,14.6,14.6,15.6,15.6,15.6,15.6,16.
     60,16.1,16.1,16.1,16.1,16.1,16.1,16.1,16.1,16.1,16.1,16.1,16.1,16.0
     7,15.8,15.8,15.8,15.6,14.9,14.9,14.9,14.9,13.6,13.6,13.6,13.6,12.8,
     812.0,12.0,12.0,11.9,11.1,11.1,11.1,11.1/
      DO 1 IL=1,52
    1 RR(IL)=R(IL)
      RETURN
      END

      SUBROUTINE RA20(RR)
      DIMENSION R(52),RR(52)
      DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
     1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
     2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
     3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
     4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/11.2,11.2,11.2,11.2,12
     5.4,12.7,12.7,12.7,13.3,14.4,14.4,14.4,14.4,15.6,15.6,15.6,15.6,16.
     62,16.3,16.3,16.3,16.4,16.4,16.4,16.4,16.4,16.3,16.3,16.3,16.3,16.0
     7,15.9,15.9,15.9,15.0,14.8,14.8,14.8,14.8,13.3,13.3,13.3,13.3,12.5,
     811.6,11.6,11.6,11.0,10.7,10.7,10.7,10.7/
      DO 1 IL=1,52
    1 RR(IL)=R(IL)
      RETURN
      END

      SUBROUTINE RA22(RR)
      DIMENSION R(52),RR(52)
      DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
     1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
     2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
     3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
     4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/10.7,10.7,10.7,10.7,11
     5.5,12.3,12.3,12.3,13.3,14.2,14.2,14.2,14.2,15.5,15.5,15.5,15.5,16.
     63,16.3,16.3,16.3,16.4,16.4,16.4,16.4,16.4,16.4,16.4,16.4,16.4,16.2
     7,15.8,15.8,15.8,15.6,14.6,14.6,14.6,14.6,13.0,13.0,13.0,13.0,12.1,
     811.1,11.1,11.1,10.6,10.2,10.2,10.2,10.2/
       DO 1 IL=1,52
```

```
 1  RR(IL)=R(IL)
    RETURN
    END

    SUBROUTINE RA24(RR)
    DIMENSION R(52),RR(52)
    DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
   1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
   2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
   3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
   4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/10.2,10.2,10.2,10.2,11
   5.0,11.9,11.9,11.9,12.9,13.9,13.9,13.9,13.9,15.4,15.4,15.4,15.4,16.
   64,16.4,16.4,16.4,16.5,16.6,16.6,16.6,16.6,16.5,16.5,16.5,16.5,16.3
   7,15.8,15.8,15.8,15.5,14.5,14.5,14.5,14.5,12.6,12.6,12.6,12.6,11.7,
   810.7,10.7,10.7,10.2,09.7,09.7,09.7,09.7/
     DO 1 IL=1,52
 1  RR(IL)=R(IL)
    RETURN
    END

    SUBROUTINE RA26(RR)
    DIMENSION R(52),RR(52)
    DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
   1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
   2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
   3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
   4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/09.8,09.8,09.8,09.8,10
   5.6,11.5,11.5,11.5,12.6,13.7,13.7,13.7,13.7,15.3,15.3,15.3,15.3,16.
   64,16.4,16.4,16.4,16.5,16.7,16.7,16.7,16.7,16.6,16.6,16.6,16.6,16.3
   7,15.7,15.7,15.7,14.7,14.3,14.3,14.3,14.3,12.3,12.3,12.3,12.3,11.3,
   810.3,10.3,10.3,10.0,09.3,09.3,09.3,09.3/
     DO 1 IL=1,52
 1  RR(IL)=R(IL)
    RETURN
    END

    SUBROUTINE MAXPN (ALA,POSMXN)
    DIMENSION POSMXN(52)
    DIMENSION POS1(52),POS2(52)
    IF(ALA.LT.15.0.OR.ALA.GT.30.0) GO TO 1
    IF(ALA.EQ.15.0) GO TO 2
    IF(ALA.GT.15.0.AND.ALA.LT.20.0) GO TO 3
    IF(ALA.EQ.20.0) GO TO 4
    IF(ALA.GT.20.0.AND.ALA.LT.25)GO TO 5
    IF(ALA.EQ.25.0) GO TO 6
    IF(ALA.GT.25.0.AND.ALA.LT.30)GO TO 7
    CALL PM30(POSMXN)
    GO TO 999
 1  CONTINUE
    WRITE(*,100)
    WRITE(*,101)
100 FORMAT( ' PROGRAMME IS ONLY CAPABLE TO HANDLE THE VALUES OF LATITU
   1DE BETWEEN 15 N TO 30 N ')
101 FORMAT( ' AS LATITUDE VALUE IS OUT OF RANGE, PROGRAMME IS TERMINAT
   1ED NOW. ')
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      WRITE(*,102)
  102 FORMAT( ' PLEASE, MODIFY DATA & THEN RERUN THE PROGRAMME. ' )
      STOP
    2 CALL PM15(POSMXN)
      GO TO 999
    3 CALL PM15(POS1)
      CALL PM20(POS2)
      ANEW=ALA-15.0
      DO 15 I=1,52
   15 POSMXN(I)=POS1(I)+ANEW/5.0*(POS2(I)-POS1(I))
      GO TO 999
    4 CALL PM20(POSMXN)
      GO TO 999
    5 CALL PM20(POS1)
      CALL PM25(POS2)
      ANEW=ALA-20.0
      DO 16 I=1,52
   16 POSMXN(I)=POS1(I)+ANEW/5.0*(POS2(I)-POS1(I))
      GO TO 999
    6 CALL PM25(POSMXN)
      GO TO 999
    7 ANEW=ALA-25.0
      CALL PM25(POS1)
      CALL PM30(POS2)
      DO 17 I=1,52
   17 POSMXN(I)=POS1(I)+ANEW/5.0*(POS2(I)-POS1(I))
  999 RETURN
      END

      SUBROUTINE PM15(RR)
      DIMENSION R(52),RR(52)
      DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
     1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
     2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
     3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
     4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/11.3,11.3,11.3,11.3,11
     5.4,11.6,11.6,11.6,11.8,12.0,12.0,12.0,12.0,12.5,12.5,12.5,12.5,12.
     68,12.8,12.8,12.8,12.9,13.0,13.0,13.0,13.0,12.9,12.9,12.9,12.9,12.8
     7,12.6,12.6,12.6,12.3,12.2,12.2,12.2,12.2,11.8,11.8,11.8,11.8,11.6,
     811.4,11.4,11.4,11.3,11.2,11.2,11.2,11.2/
        DO 1 IL=1,52
    1 RR(IL)=R(IL)
      RETURN
      END

      SUBROUTINE PM20(RR)
      DIMENSION R(52),RR(52)
      DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
     1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
     2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
     3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
     4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/11.0,11.0,11.0,11.0,11
     5.2,11.5,11.5,11.5,11.7,12.0,12.0,12.0,12.0,12.6,12.6,12.6,12.6,13.
     61,13.1,13.1,13.1,13.2,13.3,13.3,13.3,13.3,13.2,13.2,13.2,13.2,13.1
     7,12.8,12.8,12.8,12.5,12.3,12.3,12.3,12.3,11.7,11.7,11.7,11.7,11.5,
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     811.2,11.2,11.2,11.1,10.9,10.9,10.9,10.9/
      DO 1 IL=1,52
    1 RR(IL)=R(IL)
      RETURN
      END

      SUBROUTINE PM25(RR)
      DIMENSION R(52),RR(52)
      DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
     1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
     2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
     3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
     4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/10.7,10.7,10.7,10.7,11
     5.0,11.3,11.3,11.3,11.6,12.0,12.0,12.0,12.0,12.7,12.7,12.7,12.7,13.
     63,13.3,13.3,13.3,13.5,13.7,13.7,13.7,13.7,13.5,13.5,13.5,13.5,13.4
     7,13.0,13.0,13.0,12.6,12.3,12.3,12.3,12.3,11.6,11.6,11.6,11.6,11.3,
     810.9,10.9,10.9,10.8,10.6,10.6,10.6,10.6/
      DO 1 IL=1,52
    1 RR(IL)=R(IL)
      RETURN
      END

      SUBROUTINE PM30(RR)
      DIMENSION R(52),RR(52)
      DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
     1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
     2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
     3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
     4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/10.4,10.4,10.4,10.4,10
     5.7,11.1,11.1,11.1,11.6,12.0,12.0,12.0,12.0,12.9,12.9,12.9,12.9,13.
     66,13.6,13.6,13.6,13.8,14.0,14.0,14.0,14.0,13.9,13.9,13.9,13.9,13.7
     7,13.2,13.2,13.2,12.7,12.4,12.4,12.4,12.4,11.5,11.5,11.5,11.5,11.1,
     810.6,10.6,10.6,10.3,10.2,10.2,10.2,10.2/
      DO 1 IL=1,52
    1 RR(IL)=R(IL)
      RETURN
      END

      SUBROUTINE WFACT(ALT,TMEANC,W)
      DIMENSION TMEANC(52),W(52)
      DIMENSION W1(52),W2(52)
      IF(ALT.LT.0.0.OR.ALT.GT.500.0) GO TO 1
      IF(ALT.EQ.0.0) GO TO 2
      IF(ALT.GT.0.0.AND.ALT.LT.500.0) GO TO 3
      CALL W500(TMEANC,W)
      GO TO 999
    1 CONTINUE
      WRITE(*,100)
      WRITE(*,101)
  100 FORMAT( ' PROGRAMME IS ONLY CAPABLE TO HANDLE THE VALUES OF ALTITU
     1DE BETWEEN 0  m TO 500 m ')
  101 FORMAT( ' AS ALTITUDE VALUE IS OUT OF RANGE, PROGRAMME IS TERMINAT
     1ED NOW. ')
      WRITE(*,102)
  102 FORMAT( ' PLEASE, MODIFY DATA & THEN RERUN THE PROGRAMME. '  )
```

```
      STOP
    2 CALL W000(TMEANC,W)
      GO TO 999
    3 CALL W000(TMEANC,W1)
      CALL W500(TMEANC,W2)
      ANEW=ALT-0.0
      DO 15 I=1,52
   15 W(I)=W1(I)+ANEW/500.0*(W2(I)-W1(I))
  999 RETURN
      END

      SUBROUTINE W000(TMEANC,WFF)
      DIMENSION WF(52),T(20),WFF(52),TMEANC(52)
      DATA T(1),T(2),T(3),T(4),T(5),T(6),T(7),T(8),T(9),T(10),T(11),T(12
     1),T(13),T(14),T(15),T(16),T(17),T(18),T(19),T(20)/2.0,4.0,6.0,8.0,
     210.0,12.0,14.0,16.0,18.0,20.0,22.0,24.0,26.0,28.0,30.0,32.0,34.0,3
     36.0,38.0,40.0/
      DATA WF(1),WF(2),WF(3),WF(4),WF(5),WF(6),WF(7),WF(8),WF(9),WF(10),
     1WF(11),WF(12),WF(13),WF(14),WF(15),WF(16),WF(17),WF(18),WF(19),WF(
     220)/0.43,0.46,0.49,0.52,0.55,0.58,0.61,0.64,0.66,0.68,0.71,0.73,0.
     375,0.77,0.78,0.80,0.82,0.83,0.84,0.85/
      DO 1 I = 1 , 52
      IF(TMEANC(I).GT.40.0) WFF(I)=0.85
      IF(TMEANC(I).GT.40.0) GO TO 1
      DO 3 J=1,20
      IF(TMEANC(I).LE.T(J)) GO TO 2
    3 CONTINUE
    2 WFF(I)=WF(J-1)+(TMEANC(I)-T(J-1))/2.0*(WF(J)-WF(J-1))
    1 CONTINUE
      RETURN
      END

      SUBROUTINE W500(TMEANC,WFF)
      DIMENSION WF(52),T(20),WFF(52),TMEANC(52)
      DATA T(1),T(2),T(3),T(4),T(5),T(6),T(7),T(8),T(9),T(10),T(11),T(12
     1),T(13),T(14),T(15),T(16),T(17),T(18),T(19),T(20)/2.0,4.0,6.0,8.0,
     210.0,12.0,14.0,16.0,18.0,20.0,22.0,24.0,26.0,28.0,30.0,32.0,34.0,3
     36.0,38.0,40.0/
      DATA WF(1),WF(2),WF(3),WF(4),WF(5),WF(6),WF(7),WF(8),WF(9),WF(10),
     1WF(11),WF(12),WF(13),WF(14),WF(15),WF(16),WF(17),WF(18),WF(19),WF(
     220)/0.45,0.48,0.51,0.54,0.57,0.60,0.62,0.65,0.67,0.70,0.72,0.74,0.
     376,0.78,0.79,0.81,0.82,0.84,0.85,0.86/
      DO 1 I = 1 , 52
      IF(TMEANC(I).GT.40.0) WFF(I)=0.85
      IF(TMEANC(I).GT.40.0) GO TO 1
      DO 3 J=1,20
      IF(TMEANC(I).LE.T(J)) GO TO 2
    3 CONTINUE
    2 WFF(I)=WF(J-1)+(TMEANC(I)-T(J-1))/2.0*(WF(J)-WF(J-1))
    1 CONTINUE
      RETURN
      END

      SUBROUTINE DFT(T,FT)
C     COMPUTING FUNCTIONAL VALUES OF TEMPERTURE i.e. f(T).
```

```
      DIMENSION T(52),FT(52)
      DO 506 J=1,52
      IF(T(J).GT.0.0.AND.T(J).LE.10.0) GO TO 1
      IF(T(J).GT.10.0.AND.T(J).LE.22.0) GO TO 2
      IF(T(J).GT.22.0) GO TO 3
    1 FT(J)=0.17*T(J)+11.0
       GO TO 506
    2 FT(J)=0.19*T(J)+10.82
      GO TO 506
    3 FT(J)=0.2214*T(J)+10.13
  506 CONTINUE
      RETURN
      END

      SUBROUTINE CVALUE(RS)
      COMMON/E/RHMAX(52),UDAY(52),UNIT(52),C(52)
      DIMENSION RS(52)
C     COMPUTING ADJUSTMENT FACTOR C VAUES
      DO 102 J=1,52
      RT=UDAY(J)/UNIT(J)
      R=RS(J)
      RH=RHMAX(J)
      UD=UDAY(J)
      IF(RH.LE.30.0) GO TO 201
      IF(RH.GT.30.0.AND.RH.LE.60.0)GO TO 301
      IF(RH.GT.60.0.AND.RH.LT.90.0) GO TO 401
      IF(RH.GE.90.0) GO TO 501
  201 CALL RH30(RT,R,UD,CD)
      C(J)=CD
      GO TO 102
  301 CALL RH30(RT,R,UD,CD1)
      CALL RH60(RT,R,UD,CD2)
      X=RH-30.0
      XX=X*(CD2-CD1)/30.0
      C(J)=CD1+XX
      GO TO 102
  401 CALL RH60(RT,R,UD,CD1)
      CALL RH90(RT,R,UD,CD2)
      X=RH-60.0
      XX=X*(CD2-CD1)/30.0
      C(J)=CD1+XX
      GO TO 102
  501 CALL RH90(RT,R,UD,CD)
      C(J)=CD
  102 CONTINUE
  101 CONTINUE
      RETURN
      END

      SUBROUTINE RH30(RT,R,UD,CD)
      IF(RT.LE.1.0) GO TO 1
      IF(RT.GT.1.0.AND.RT.LE.2.0) GO TO 1
      IF(RT.GT.2.0.AND.RT.LE.3.0) GO TO 2
      IF(RT.GT.3.0.AND.RT.LT.4.0) GO TO 3
      IF(RT.GE.4.0) GO TO 4
```

```
1     IF(R.LE.3.0) GO TO 11
      IF(R.GT.3.0.AND.R.LE.6.0) GO TO 12
      IF(R.GT.6.0.AND.R.LE.9.0) GO TO 13
      IF(R.GT.9.0.AND.R.LT.12.0) GO TO 14
      IF(R.GE.12) CALL RS3112(UD,CD)
      IF(RT.GT.1.0) GO TO 2
      GO TO 10
11    CALL RS313(UD,CD)
      GO TO 10
12    CALL RS313(UD,CD)
      CALL RS316(UD,CD2)
      CD=((CD2-CD1)*(R-3.0)/3.0)+CD1
      IF(RT.GT.1.0) GO TO 2
      GO TO 10
13    CALL RS316(UD,CD1)
      CALL RS319(UD,CD2)
      CD=((CD2-CD1)*(R-6.0)/3.0)+CD1
      IF(RT.GT.1) GO TO 2
      GO TO 10
14    CALL RS319(UD,CD1)
      CALL RS3112(UD,CD2)
      CD=((CD2-CD1)*(R-9.0)/3.0)+CD1
      IF(RT.GT.1.0) GO TO 2
      GO TO 10
2     CONTINUE
      IF(R.LE.3.0) GO TO 21
      IF(R.GT.3.0.AND.R.LE.6.0) GO TO 22
      IF(R.GT.6.0.AND.R.LE.9.0 )GO TO 23
      IF(R.GT.9.0.AND.R.LT.12.0) GO TO 24
      IF(R.GE.12) CALL RS3212(UD,CD1)
      IF(RT.GT.2.0) GO TO 3
      GO TO 20
21    CALL RS323(UD,CD1)
      IF(RT.GT.2.0) GO TO 3
      GO TO 20
22    CALL RS323(UD,CD1)
      CALL RS326(UD,CD2)
      CD1=((CD2-CD1)*(R-3.0)/3.0)+CD1
      IF(RT.GT.2.0) GO TO 3
      GO TO 20
23    CALL RS326(UD,CD1)
      CALL RS329(UD,CD2)
      CD1=((CD2-CD1)*(R-6.0)/3.0)+CD1
      IF(RT.GT.2.0) GO TO 3
      GO TO 20
24    CALL RS329(UD,CD1)
      CALL RS3212(UD,CD2)
      CD1=((CD2-CD1)*(R-9.0)/3.0)+CD1
      CD2=CD
      IF(RT.GT.2.0) GO TO 3
20    CD=(CD1-CD2)*(RT-1)+CD2
      GO TO 10
3     CONTINUE
      IF(R.LE.3.0) GO TO 31
      IF(R.GT.3.0 .AND. R.LE.6.0)GO TO 32
```

```
      IF(R.GT.6.0 .AND. R.LE.9.0)GO TO 33
      IF(R.GT.9.0 .AND. R.LT.12.0)GO TO 34
      IF(R.GE.12.0 )CALL RS3312(UD,CD3)
      IF(RT.GT.3.0 )GO TO 4
      GO TO 30
   31 CALL RS333(UD,CD3)
      IF(RT.GT.3.0)GO TO 4
      GO TO 30
   32 CALL RS333(UD,CC1)
      CALL RS336(UD,CC2
      CD3=((CC2-CC1)*(R-3.0)/3.0)+CC1
      IF(RT.GT.3.0)GO TO 4
      GO TO 30
   33 CALL RS336(UD,CC1)
      CALL RS339(UD,CC2)
      CD3=((CC2-CC1)*(R-6.0)/3.0)+CC1
      IF(RT.GT.3.0)GO TO 4
      GO TO 30
   34 CALL RS339(UD,CC1)
      CALL RS3312(UD,CC2)
      CD3=((CC2-CC1)*(R-9.0)/3.0)+CC1
      IF(RT.GT.3.0)GO TO 4
   30 CD=(CD3-CD1)*(RT-2.0)+CD1
      GO TO 10
    4 CONTINUE
      IF(R.LE.3.0)GO TO 41
      IF(R.GT.3.0.AND.R.LE.6.0)GO TO 42
      IF(R.GT.6.0.AND.R.LE.9.0)GO TO 43
      IF(R.GT.9.0.AND.R.LT.12.0)GO TO 44
      IF(R.GE.12.0)CALL RS3412(UD,CD4)
      IF(RT.GE.4.0)GO TO 5
   41 CALL RS343(UD,CD4)
      IF(RT.GE.4)GO TO 5
      GO TO 40
   42 CALL RS343(UD,DC1)
      CALL RS346(UD,DC2)
      DC3=((DC2-DC1)*(R-3.0)/3.0)+DC1
      IF(RT.GE.4.0)GO TO 5
      GO TO 40
   43 CALL RS346(UD,DC1)
      CALL RS349(UD,DC2)
      DC3=((DC2-DC1)*(R-6.0)/3.0)+DC1
      IF(RT.GE.4.0)GO TO 5
      GO TO 40
   44 CALL RS349(UD,DC1)
      CALL RS3412(UD,DC2)
      DC3=((DC2-DC1)*(R-9.0)/3.0)+DC1
      IF(RT.GE.4.0)GO TO 5
   40 CD=(DC3-CD3)*(RT-3.0)+CD3
      GO TO 10
    5 CONTINUE
      CD=DC3
   10 CONTINUE
      RETURN
      END
```

```
      SUBROUTINE RH60(RT,R,UD,CD)
      IF(RT.LE.1.0) GO TO 1
      IF(RT.GT.1.0.AND.RT.LE.2.0) GO TO 1
      IF(RT.GT.2.0.AND.RT.LE.3.0) GO TO 2
      IF(RT.GT.3.0.AND.RT.LT.4.0) GO TO 3
      IF(RT.GE.4.0) GO TO 4
1     IF(R.LE.3.0) GO TO 11
      IF(R.GT.3.0.AND.R.LE.6.0) GO TO 12
      IF(R.GT.6.0.AND.R.LE.9.0) GO TO 13
      IF(R.GT.9.0.AND.R.LT.12.0) GO TO 14
      IF(R.GE.12) CALL RS6112(UD,CD)
      IF(RT.GT.1.0) GO TO 2
      GO TO 10
11    CALL RS613(UD,CD)
      GO TO 10
12    CALL RS613(UD,CD)
      CALL RS616(UD,CD2)
      CD=((CD2-CD1)*(R-3.0)/3.0)+CD1
      IF(RT.GT.1.0) GO TO 2
      GO TO 10
13    CALL RS616(UD,CD1)
      CALL RS619(UD,CD2)
      CD=((CD2-CD1)*(R-6.0)/3.0)+CD1
      IF(RT.GT.1) GO TO 2
      GO TO 10
14    CALL RS619(UD,CD1)
      CALL RS6112(UD,CD2)
      CD=((CD2-CD1)*(R-9.0)/3.0)+CD1
      IF(RT.GT.1.0) GO TO 2
      GO TO 10
2     CONTINUE
      IF(R.LE.3.0) GO TO 21
      IF(R.GT.3.0.AND.R.LE.6.0) GO TO 22
      IF(R.GT.6.0.AND.R.LE.9.0 )GO TO 23
      IF(R.GT.9.0.AND.R.LT.12.0) GO TO 24
      IF(R.GE.12) CALL RS6212(UD,CD1)
      IF(RT.GT.2.0) GO TO 3
      GO TO 20
21    CALL RS623(UD,CD1)
      IF(RT.GT.2.0) GO TO 3
      GO TO 20
22    CALL RS623(UD,CD1)
      CALL RS626(UD,CD2)
      CD1=((CD2-CD1)*(R-3.0)/3.0)+CD1
      IF(RT.GT.2.0) GO TO 3
      GO TO 20
23    CALL RS626(UD,CD1)
      CALL RS629(UD,CD2)
      CD1=((CD2-CD1)*(R-6.0)/3.0)+CD1
      IF(RT.GT.2.0) GO TO 3
      GO TO 20
24    CALL RS629(UD,CD1)
      CALL RS6212(UD,CD2)
      CD1=((CD2-CD1)*(R-9.0)/3.0)+CD1
```

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      CD2=CD
      IF(RT.GT.2.0) GO TO 3
20    CD=(CD1-CD2)*(RT-1)+CD2
      GO TO 10
3     CONTINUE
      IF(R.LE.3.0) GO TO 31
      IF(R.GT.3.0 .AND. R.LE.6.0)GO TO 32
      IF(R.GT.6.0 .AND. R.LE.9.0)GO TO 33
      IF(R.GT.9.0 .AND. R.LT.12.0)GO TO 34
      IF(R.GE.12.0 )CALL RS6312(UD,CD3)
      IF(Rt.GT.3.0 )GO TO 4
      GO TO 30
31    CALL RS633(UD,CD3)
      IF(RT.GT.3.0)GO TO 4
      GO TO 30
32    CALL RS633(UD,CC1)
      CALL RS636(UD,CC2)
      CD3=((CC2-CC1)*(R-3.0)/3.0)+CC1
      IF(RT.GT.3.0)GO TO 4
      GO TO 30
33    CALL RS636(UD,CC1)
      CALL RS639(UD,CC2)
      CD3=((CC2-CC1)*(R-6.0)/3.0)+CC1
      IF(RT.GT.3.0)GO TO 4
      GO TO 30
34    CALL RS639(UD,CC1)
      CALL RS6312(UD,CC2)
      CD3=((CC2-CC1)*(R-9.0)/3.0)+CC1
      IF(RT.GT.3.0)GO TO 4
30    CD=(CD3-CD1)*(RT-2.0)+CD1
      GO TO 10
4     CONTINUE
      IF(R.LE.3.0)GO TO 41
      IF(R.GT.3.0.AND.R.LE.6.0)GO TO 42
      IF(R.GT.6.0.AND.R.LE.9.0)GO TO 43
      IF(R.GT.9.0.AND.R.LT.12.0)GO TO 44
      IF(R.GE.12.0)CALL RS6412(UD,CD4)
      IF(RT.GE.4.0)GO TO 5
 41   CALL RS643(UD,CD4)
      IF(RT.GE.4)GO TO 5
      GO TO 40
 42   CALL RS643(UD,DC1)
      CALL RS646(UD,DC2)
      DC3=((DC2-DC1)*(R-3.0)/3.0)+DC1
      IF(RT.GE.4.0)GO TO 5
      GO TO 40
 43   CALL RS646(UD,DC1)
      CALL RS649(UD,DC2)
      DC3=((DC2-DC1)*(R-6.0)/3.0)+DC1
      IF(RT.GE.4.0)GO TO 5
      GO TO 40
 44   CALL RS649(UD,DC1)
      CALL RS6412(UD,DC2)
      DC3=((DC2-DC1)*(R-9.0)/3.0)+DC1
      IF(RT.GE.4.0)GO TO 5
```

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 40  CD=(DC3-CD3)*(RT-3.0)+CD3
     GO TO 10
  5  CONTINUE
     CD=DC3
 10  CONTINUE
     RETURN
     END

     SUBROUTINE RH90(RT,R,UD,CD)
     IF(RT.LE.1.0) GO TO 1
     IF(RT.GT.1.0.AND.RT.LE.2.0) GO TO 1
     IF(RT.GT.2.0.AND.RT.LE.3.0) GO TO 2
     IF(RT.GT.3.0.AND.RT.LT.4.0) GO TO 3
     IF(RT.GE.4.0) GO TO 4
1    IF(R.LE.3.0) GO TO 11
     IF(R.GT.3.0.AND.R.LE.6.0) GO TO 12
     IF(R.GT.6.0.AND.R.LE.9.0) GO TO 13
     IF(R.GT.9.0.AND.R.LT.12.0) GO TO 14
     IF(R.GE.12) CALL RS9112(UD,CD)
     IF(RT.GT.1.0) GO TO 2
     GO TO 10
11   CALL RS913(UD,CD)
     GO TO 10
12   CALL RS913(UD,CD)
     CALL RS916(UD,CD2)
     CD=((CD2-CD1)*(R-3.0)/3.0)+CD1
     IF(RT.GT.1.0) GO TO 2
     GO TO 10
13   CALL RS916(UD,CD1)
     CALL RS919(UD,CD2)
     CD=((CD2-CD1)*(R-6.0)/3.0)+CD1
     IF(RT.GT.1) GO TO 2
     GO TO 10
14   CALL RS919(UD,CD1)
     CALL RS9112(UD,CD2)
     CD=((CD2-CD1)*(R-9.0)/3.0)+CD1
     IF(RT.GT.1.0) GO TO 2
     GO TO 10
2    CONTINUE
     IF(R.LE.3.0) GO TO 21
     IF(R.GT.3.0.AND.R.LE.6.0) GO TO 22
     IF(R.GT.6.0.AND.R.LE.9.0 )GO TO 23
     IF(R.GT.9.0.AND.R.LT.12.0) GO TO 24
     IF(R.GE.12) CALL RS9212(UD,CD1)
     IF(RT.GT.2.0) GO TO 3
     GO TO 20
21   CALL RS923(UD,CD1)
     IF(RT.GT.2.0) GO TO 3
     GO TO 20
22   CALL RS923(UD,CD1)
     CALL RS926(UD,CD2)
     CD1=((CD2-CD1)*(R-3.0)/3.0)+CD1
     IF(RT.GT.2.0) GO TO 3
     GO TO 20
23   CALL RS926(UD,CD1)
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      CALL RS929(UD,CD2)
      CD1=((CD2-CD1)*(R-6.0)/3.0)+CD1
      IF(RT.GT.2.0) GO TO 3
      GO TO 20
24    CALL RS929(UD,CD1)
      CALL RS9212(UD,CD2)
      CD1=((CD2-CD1)*(R-9.0)/3.0)+CD1
      CD2=CD
      IF(RT.GT.2.0) GO TO 3
20    CD=(CD1-CD2)*(RT-1)+CD2
      GO TO 10
3     CONTINUE
      IF(R.LE.3.0) GO TO 31
      IF(R.GT.3.0 .AND. R.LE.6.0)GO TO 32
      IF(R.GT.6.0 .AND. R.LE.9.0)GO TO 33
      IF(R.GT.9.0 .AND. R.LT.12.0)GO TO 34
      IF(R.GE.12.0 ) CALL RS9312(UD,CD3)
      IF(Rt.GT.3.0 )GO TO 4
      GO TO 30
31    CALL RS933(UD,CD3)
      IF(RT.GT.3.0)GO TO 4
      GO TO 30
32    CALL RS933(UD,CC1)
      CALL RS936(UD,CC2)
      CD3=((CC2-CC1)*(R-3.0)/3.0)+CC1
      IF(RT.GT.3.0)GO TO 4
      GO TO 30
33    CALL RS936(UD,CC1)
      CALL RS939(UD,CC2)
      CD3=((CC2-CC1)*(R-6.0)/3.0)+CC1
      IF(RT.GT.3.0)GO TO 4
      GO TO 30
34    CALL RS939(UD,CC1)
      CALL RS9312(UD,CC2)
      CD3=((CC2-CC1)*(R-9.0)/3.0)+CC1
      IF(RT.GT.3.0)GO TO 4
30    CD=(CD3-CD1)*(RT-2.0)+CD1
      GO TO 10
4     CONTINUE
      IF(R.LE.3.0)GO TO 41
      IF(R.GT.3.0.AND.R.LE.6.0)GO TO 42
      IF(R.GT.6.0.AND.R.LE.9.0)GO TO 43
      IF(R.GT.9.0.AND.R.LT.12.0)GO TO 44
      IF(R.GE.12.0)CALL RS9412(UD,CD4)
      IF(RT.GE.4.0)GO TO 5
 41   CALL RS943(UD,CD4)
      IF(RT.GE.4)GO TO 5
      GO TO 40
 42   CALL RS943(UD,DC1)
      CALL RS946(UD,DC2)
      DC3=((DC2-DC1)*(R-3.0)/3.0)+DC1
      IF(RT.GE.4.0)GO TO 5
      GO TO 40
 43   CALL RS946(UD,DC1)
      CALL RS949(UD,DC2)
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      DC3=((DC2-DC1)*(R-6.0)/3.0)+DC1
      IF(RT.GE.4.0)GO TO 5
      GO TO 40
   44 CALL RS949(UD,DC1)
      CALL RS9412(UD,DC2)
      DC3=((DC2-DC1)*(R-9.0)/3.0)+DC1
      IF(RT.GE.4.0)GO TO 5
   40 CD=(DC3-CD3)*(RT-3.0)+CD3
      GO TO 10
    5 CONTINUE
      CD=DC3
   10 CONTINUE
      RETURN
      END

      SUBROUTINE RS313(UD,CD)
      DIMENSION X(4),Y(4)
      DATA X(1),X(2),X(3),X(4)/0.86,0.64,0.43,0.27/
      DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9.0/
      CD=XYZ(X,Y,UD)
      RETURN
      END

      SUBROUTINE RS316(UD,CD)
      DIMENSIONX(4),Y(4)
      DATA X(1),X(2),X(3),X(4)/0.9,0.71,0.53,0.41/
      DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9.0 /
      CD=XYZ(X,Y,UD)
      RETURN
      END

      SUBROUTINE RS319(UD,CD)
      DIMENSION X(4),Y(4)
      DATA X(1),X(2),X(3),X(4)/1.0,0.82,0.68,0.59/
      DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9.0 /
      CD=XYZ(X,Y,UD)
      RETURN
      END

      SUBROUTINE RS3112(UD,CD)
      DIMENSION X(4),Y(4)
      DATA X(1),X(2),X(3),X(4)/1.0,0.89,0.79,0.7/
      DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9.0 /
      CD=XYZ(X,Y,UD)
      RETURN
      END

      SUBROUTINE RS323(UD,CD)
      DIMENSION X(4),Y(4)
      DATA X(1),X(2),X(3),X(4)/0.86,0.69,0.53,0.37/
      DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9.0/
      CD=XYZ(X,Y,UD)
      RETURN
      END
```

```
SUBROUTINE RS326(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/0.9,0.76,0.61,0.48/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9.0/
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS329(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/1.0,0.85,0.74,0.65/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS3212(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/1.0,0.92,0.84,0.76/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS333(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/0.86,0.76,0.61,0.46/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS336(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/0.9,0.81,0.68,0.56/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS339(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/1.0,0.88,0.81,0.72/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS3312(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/1.00,0.94,0.88,0.82/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END
```

```
      SUBROUTINE RS343(UD,CD)
      DIMENSION X(4),Y(4)
      DATA X(1),X(2),X(3),X(4)/0.86,0.79,0.68,0.55/
      DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
      CD=XYZ(X,Y,UD)
      RETURN
      END

      SUBROUTINE RS346(UD,CD)
      DIMENSION X(4),Y(4)
      DATA X(1),X(2),X(3),X(4)/0.9,0.84,0.77,0.65/
      DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
      CD=XYZ(X,Y,UD)
      RETURN
      END

      SUBROUTINE RS349(UD,CD)
      DIMENSION X(4),Y(4)
      DATA X(1),X(2),X(3),X(4)/1.00,0.92,0.87,0.78/
      DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
      CD=XYZ(X,Y,UD)
      RETURN
      END

      SUBROUTINE RS3412(UD,CD)
      DIMENSION X(4),Y(4)
      DATA X(1),X(2),X(3),X(4)/1.00,0.97,0.93,0.9/
      DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
      CD=XYZ(X,Y,UD)
      RETURN
      END

      SUBROUTINE RS613(UD,CD)
      DIMENSION X(4),Y(4)
      DATA X(1),X(2),X(3),X(4)/0.96,0.78,0.62,0.5/
      DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
      CD=XYZ(X,Y,UD)
      RETURN
      END

      SUBROUTINE RS616(UD,CD)
      DIMENSION X(4),Y(4)
      DATA X(1),X(2),X(3),X(4)/0.98,0.86,0.70,0.6/
      DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
      CD=XYZ(X,Y,UD)
      RETURN
      END

      SUBROUTINE RS619(UD,CD)
      DIMENSION X(4),Y(4)
      DATA X(1),X(2),X(3),X(4)/1.05,0.94,0.84,0.75/
      DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
      CD=XYZ(X,Y,UD)
      RETURN
```

```
END

SUBROUTINE RS6112(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/1.05,0.99,0.93,0.87/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS623(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/0.96,0.83,0.7,0.59/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS626(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/0.98,0.91,0.8,0.7/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS629(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/1.05,0.99,0.94,0.84/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS6212(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/1.05,1.05,1.02,0.95/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS633(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/0.96,0.87,0.77,0.67/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS636(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/0.98,0.96,0.88,0.79/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
```

```
RETURN
END

SUBROUTINE RS639(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/1.05,1.06,1.02,0.88/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS6312(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/1.05,1.12,1.10,1.05/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS643(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/0.96,0.92,0.85,0.76/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS646(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/0.98,1.0,0.96,0.88/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS649(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/1.05,1.11,1.11,1.02/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS6412(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/1.05,1.19,1.19,1.14/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS913(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/1.02,0.85,0.72,0.62/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
```

```
      CD=XYZ(X,Y,UD)
      RETURN
      END

      SUBROUTINE RS916(UD,CD)
      DIMENSION X(4),Y(4)
      DATA X(1),X(2),X(3),X(4)/1.06,0.92,0.82,0.72/
      DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
      CD=XYZ(X,Y,UD)
      RETURN
      END

      SUBROUTINE RS919(UD,CD)
      DIMENSION X(4),Y(4)
      DATA X(1),X(2),X(3),X(4)/1.1,1.01,0.95,0.87/
      DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
      CD=XYZ(X,Y,UD)
      RETURN
      END

      SUBROUTINE RS9112(UD,CD)
      DIMENSION X(4),Y(4)
      DATA X(1),X(2),X(3),X(4)/1.1,1.05,1.0,0.96/
      DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
      CD=XYZ(X,Y,UD)
      RETURN
      END

      SUBROUTINE RS923(UD,CD)
      DIMENSION X(4),Y(4)
      DATA X(1),X(2),X(3),X(4)/1.02,0.89,0.79,0.71/
      DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
      CD=XYZ(X,Y,UD)
      RETURN
      END

      SUBROUTINE RS926(UD,CD)
      DIMENSION X(4),Y(4)
      DATA X(1),X(2),X(3),X(4)/1.06,0.98,0.92,0.81/
      DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
      CD=XYZ(X,Y,UD)
      RETURN
      END

      SUBROUTINE RS929(UD,CD)
      DIMENSION X(4),Y(4)
      DATA X(1),X(2),X(3),X(4)/1.1,1.1,1.05,0.96/
      DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
      CD=XYZ(X,Y,UD)
      RETURN
      END

      SUBROUTINE RS9212(UD,CD)
      DIMENSION X(4),Y(4)
```

```
DATA X(1),X(2),X(3),X(4)/1.1,1.14,1.12,1.06/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS933(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/1.02,0.94,0.86,0.78/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS936(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/1.06,1.04,1.01,0.92/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS939(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/1.1,1.18,1.15,1.06/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS9312(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/1.1,1.28,1.22,1.18/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS943(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/1.02,0.99,0.94,0.88/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS946(UD,CD)
DIMENSION X(4),Y(4)
DATA X(1),X(2),X(3),X(4)/1.06,1.1,1.1,1.01/
DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
CD=XYZ(X,Y,UD)
RETURN
END

SUBROUTINE RS949(UD,CD)
```

```
      DIMENSION X(4),Y(4)
      DATA X(1),X(2),X(3),X(4)/1.1,1.27,1.26,1.16/
      DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
      CD=XYZ(X,Y,UD)
      RETURN
      END

      SUBROUTINE RS9412(UD,CD)
      DIMENSION X(4),Y(4)
      DATA X(1),X(2),X(3),X(4)/1.1,1.32,1.33,1.27/
      DATA Y(1),Y(2),Y(3),Y(4)/0.0,3.0,6.0,9./
      CD=XYZ(X,Y,UD)
      RETURN
      END

      FUNCTION XYZ(X,Y,UD)
      DIMENSION X(4),Y(4)
      IF(UD.EQ.0.0) CD=X(1)
      IF(UD.GE.9.0) CD=X(4)
      IF(UD.EQ.0.0.OR.UD.GE.9.0) GO TO 4
      DO 1 I=1,4
      N=I+1
      IF(UD-Y(N))2,3,1
1     CONTINUE
      GO TO 4
3     CD=X(N)
      GO TO 4
2     XX=(X(N)-X(I))*(UD-Y(I))/3.0
      CD=XX+X(I)
4     CONTINUE
      XYZ=CD
      RETURN
      END
```

ANNEXURE 7.2

```
C     PROGRAMME FOR COMPUTING EVAPOTRANSPIRATION BY BLANEY-CRIDDLE METHOD

      DIMENSION U2DAY(52),A(52),B(52),P(52),RHMIN(52),TMEANC(52),TMAX(52
     1),TMIN(52)
      DIMENSION ETO(52),STATION(7),POSMXN(52),ACTUN(52),RATION(52)
      OPEN(UNIT=1,FILE='GEN.DAT',STATUS='OLD')
      OPEN(UNIT=2,FILE='SUN.DAT',STATUS='OLD')
      OPEN(UNIT=3,FILE='TMAX.DAT',STATUS='OLD')
      OPEN(UNIT=7,FILE='TMIN.DAT',STATUS='OLD')
      OPEN(UNIT=4,FILE='RHMIN.DAT',STATUS='OLD')
      OPEN(UNIT=5,FILE='WIND.DAT',STATUS='OLD')
      OPEN(UNIT=6,FILE='BC.OUT',STATUS='NEW')
      READ(1,3)MORE
C     MORE=NUMBER OF STATIONS FOR WHICH THE PROGRAMME IS TO BE RUN
 1    FORMAT(3F6.2)
 2    FORMAT(13F6.2)
 3    FORMAT(I1)
 4    FORMAT(7A4)
 5    FORMAT(13F6.3)
 11   FORMAT('              ETo RESULTS BY BLANEY - CRIDDLE METHOD ',//
     1,15X,36(1H-),//,1X,7A4,'LON.: ',F6.2,', LAT. : ',F6.2,', ALTITUDE
     2: ',F6.2,//,78(1H-),//)
 12   FORMAT (1X,'WEEK CONSTANT   RH MIN    CONSTANT  TEMPERATURE    P
     1  EVAPOTRANSPIRATION'/1X,' NO.       a       %         b       DEG
     2REE C   CONSTANT      RATE        '/39X,'T MEAN
     3ETo         '/54X,'       mm/day  ',/78(1H-)//)
 13   FORMAT(2X,I2, 1X,F8.4,4X,F6.2,4X,F6.3,5X,F5.2,4X,F6.3,8X,F6.2)
 14   FORMAT (' READING A LINE ')
 15   FORMAT(2X,'                COMPUTER READIND DATA ... ' )
 16   FORMAT (' COMPUTER IS THINKING ! !! ')
 17   FORMAT('               DOING ANALYSIS, PLEASE WAIT  ....  !!! ')
 18   FORMAT(//,(78(1H-))//////)
 19   FORMAT(' NEXT THINKING GOING ON  ..... ! ')
 20   FORMAT ('             HIGHER LEVEL THINKING, DO NOT DISTURB ')
      DO 100 INO=1,MORE
      WRITE(*,15)
      READ(1,4)(STATION(I),I=1,7)
C     STATION(I)= NAME OF STATION FOR WHICH PROGRAMME IS TO RUN
      READ(1,1) ALATI,ALONGI,ALTI
C     ALATI= LATITUDE, ALONGI= LONGITUDE, ALTI= ALTITUDE OF THE STATION
      READ(2,2)(ACTUN(I),I=1,52)
C     ACTUN(I)= ACTUAL SUN SHINE HOURS FOR Ith WEEK
      READ(3,2)(TMAX(I),I=1,52)
      READ(7,2)(TMIN(I),I=1,52)
C     TMAX(I) = MEAN MAXIMUM TEMPERATURE OF Ith WEEK IN CENTIGRADE.
C     TMIN(I) = MEAN MINIMUM TEMPERATURE OF Ith WEEK IN CENTIGRADE.
      READ(4,2)(RHMIN(I),I=1,52)
      WRITE(*,14)
C     RHMIN(I) = MINIMUM RELATIVE HUMIDITY % FOR Ith WEEK
      READ(5,5)(U2DAY(I),I=1,52)
C     U2DAY(I)= WIND VELOCITY AT 2 m DURING DAY IN m/sec FOR Ith WEEK
      WRITE(*,16)
```

```
      DO 333 I=1,52
333   TMEANC(I)=(TMAX(I)+TMIN(I))/2.0
      CALL MAXPN(ALATI,POSMXN)
      WRITE(*,19)
      DO 200 II = 1, 52
200   RATION(II)= ACTUN(II)/POSMXN(II)
      DO 201 II=1,52
201   A(II)= 0.0043 * RHMIN(II)-ACTUN(II) / POSMXN(II)-1.41
      WRITE(*,20)
      CALL PCONST(ALATI,P)
      WRITE(*,17)
      CALL BCONST(RHMIN,RATION,U2DAY,B)
      DO 202 II=1,52
202   ETO(II) = A(II) + B(II) * P(II) * ( 0.46 * TMEANC(II) + 8.0 )
      WRITE(6,11)(STATION(I),I=1,7),ALONGI,ALATI,ALTI
      WRITE(6,12)
      DO 203 II=1,52
      WRITE(6,13)II,A(II),RHMIN(II),B(II),TMEANC(II),P(II),ETO(II)
203   CONTINUE
      WRITE(6,18)
100   CONTINUE
      STOP
      END

      SUBROUTINE MAXPN (ALA,POSMXN)
      DIMENSION POSMXN(52)
      DIMENSION POS1(52),POS2(52)
      IF(ALA.LT.15.0.OR.ALA.GT.30.0) GO TO 1
      IF(ALA.EQ.15.0) GO TO 2
      IF(ALA.GT.15.0.AND.ALA.LT.20.0) GO TO 3
      IF(ALA.EQ.20.0) GO TO 4
      IF(ALA.GT.20.0.AND.ALA.LT.25)GO TO 5
      IF(ALA.EQ.25.0) GO TO 6
      IF(ALA.GT.25.0.AND.ALA.LT.30)GO TO 7
      CALL PM30(POSMXN)
      GO TO 999
 1    CONTINUE
      WRITE(*,100)
      WRITE(*,101)
 100  FORMAT( ' PROGRAMME IS ONLY CAPABLE TO HANDLE THE VALUES OF LATITU
     1DE BETWEEN 15 N TO 30 N ')
 101  FORMAT( ' AS LATITUDE VALUE IS OUT OF RANGE, PROGRAMME IS TERMINAT
     1ED NOW. ')
      WRITE(*,102)
 102  FORMAT( ' PLEASE, MODIFY DATA & THEN RERUN THE PROGRAMME. ' )
      STOP
 2    CALL PM15(POSMXN)
      GO TO 999
 3    CALL PM15(POS1)
      CALL PM20(POS2)
      ANEW=ALA-15.0
      DO 15 I=1,52
 15   POSMXN(I)=POS1(I)+ANEW/5.0*(POS2(I)-POS1(I))
      GO TO 999
  4   CALL PM20(POSMXN)
```

```
      GO TO 999
    5 CALL PM20(POS1)
      CALL PM25(POS2)
      ANEW=ALA-20.0
      DO 16 I=1,52
   16 POSMXN(I)=POS1(I)+ANEW/5.0*(POS2(I)-POS1(I))
      GO TO 999
    6 CALL PM25(POSMXN)
      GO TO 999
    7 ANEW=ALA-25.0
      CALL PM25(POS1)
      CALL PM30(POS2)
      DO 17 I=1,52
   17 POSMXN(I)=POS1(I)+ANEW/5.0*(POS2(I)-POS1(I))
  999 RETURN
      END

      SUBROUTINE PM15(RR)
      DIMENSION R(52),RR(52)
      DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
     1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
     2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
     3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
     4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/11.3,11.3,11.3,11.3,11
     5.4,11.6,11.6,11.6,11.8,12.0,12.0,12.0,12.0,12.5,12.5,12.5,12.5,12.
     68,12.8,12.8,12.8,12.9,13.0,13.0,13.0,13.0,12.9,12.9,12.9,12.9,12.8
     7,12.6,12.6,12.6,12.3,12.2,12.2,12.2,12.2,11.8,11.8,11.8,11.8,11.6,
     811.4,11.4,11.4,11.3,11.2,11.2,11.2,11.2/
       DO 1 IL=1,52
    1 RR(IL)=R(IL)
      RETURN
      END

      SUBROUTINE PM20(RR)
      DIMENSION R(52),RR(52)
      DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
     1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
     2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
     3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
     4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/11.0,11.0,11.0,11.0,11
     5.2,11.5,11.5,11.5,11.7,12.0,12.0,12.0,12.0,12.6,12.6,12.6,12.6,13.
     61,13.1,13.1,13.1,13.2,13.3,13.3,13.3,13.3,13.2,13.2,13.2,13.2,13.1
     7,12.8,12.8,12.8,12.5,12.3,12.3,12.3,12.3,11.7,11.7,11.7,11.7,11.5,
     811.2,11.2,11.2,11.1,10.9,10.9,10.9,10.9/
      DO 1 IL=1,52
    1 RR(IL)=R(IL)
      RETURN
      END

      SUBROUTINE PM25(RR)
      DIMENSION R(52),RR(52)
      DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
     1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
     2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
     3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
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```
     4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/10.7,10.7,10.7,10.7,11
     5.0,11.3,11.3,11.3,11.6,12.0,12.0,12.0,12.0,12.7,12.7,12.7,12.7,13.
     63,13.3,13.3,13.3,13.5,13.7,13.7,13.7,13.7,13.5,13.5,13.5,13.5,13.4
     7,13.0,13.0,13.0,12.6,12.3,12.3,12.3,12.3,11.6,11.6,11.6,11.6,11.3,
     810.9,10.9,10.9,10.8,10.6,10.6,10.6,10.6/
      DO 1 IL=1,52
    1 RR(IL)=R(IL)
      RETURN
      END

      SUBROUTINE PM30(RR)
      DIMENSION R(52),RR(52)
      DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
     1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
     2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
     3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
     4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/10.4,10.4,10.4,10.4,10
     5.7,11.1,11.1,11.1,11.6,12.0,12.0,12.0,12.0,12.9,12.9,12.9,12.9,13.
     66,13.6,13.6,13.8,14.0,14.0,14.0,14.0,13.9,13.9,13.9,13.9,13.7
     7,13.2,13.2,13.2,12.7,12.4,12.4,12.4,12.4,11.5,11.5,11.5,11.5,11.1,
     810.6,10.6,10.6,10.3,10.2,10.2,10.2,10.2/
      DO 1 IL=1,52
    1 RR(IL)=R(IL)
      RETURN
      END

      SUBROUTINE PCONST(ALA,P)
      DIMENSION P(52),P1(52),P2(52)
      IF(ALA.LT.15.0.OR.ALA.GT.30.0) GO TO 1
      IF(ALA.EQ.15.0) GO TO 2
      IF(ALA.GT.15.0.AND.ALA.LT.20.0) GO TO 3
      IF(ALA.EQ.20.0) GO TO 4
      IF(ALA.GT.20.0.AND.ALA.LT.25)GO TO 5
      IF(ALA.EQ.25.0) GO TO 6
      IF(ALA.GT.25.0.AND.ALA.LT.30)GO TO 7
      CALL PC30(P)
      GO TO 999
    1 CONTINUE
      WRITE(*,100)
      WRITE(*,101)
  100 FORMAT( ' PROGRAMME IS ONLY CAPABLE TO HANDLE THE VALUES OF LATITU
     1DE BETWEEN 15 N TO 30 N ')
  101 FORMAT( ' AS LATITUDE VALUE IS OUT OF RANGE, PROGRAMME IS TERMINAT
     1ED NOW. ')
      WRITE(*,102)
  102 FORMAT( ' PLEASE, MODIFY DATA & THEN RERUN THE PROGRAMME. ' )
      STOP
    2 CALL PC15(P)
      GO TO 999
    3 CALL PC15(P1)
      CALL PC20(P2)
      ANEW=ALA-15.0
      DO 15 I=1,52
   15 P(I)=P1(I)+ANEW/5.0*(P2(I)-P1(I))
      GO TO 999
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```
    4  CALL PC20(P)
       GO TO 999
    5  CALL PC20(P1)
       CALL PC25(P2)
       ANEW=ALA-20.0
       DO 16 I=1,52
   16  P(I)=P1(I)+ANEW/5.0*(P2(I)-P1(I))
       GO TO 999
    6  CALL PC25(P)
       GO TO 999
    7  ANEW=ALA-25.0
       CALL PC25(P1)
       CALL PC30(P2)
       DO 17 I=1,52
   17  P(I)=P1(I)+ANEW/5.0*(P2(I)-P1(I))
  999  RETURN
       END

       SUBROUTINE PC15(RR)
       DIMENSION R(52),RR(52)
       DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
      1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
      2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
      3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
      4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/0.26,0.26,0.26,0.26,0.
      526,0.26,0.26,0.26,.265,0.27,0.27,.027,0.27,0.28,0.28,0.28,0.28,0.2
      69,0.29,0.29,0.29,0.29,0.29,0.29,0.29,0.29,0.29,0.29,0.29,0.29,0.28
      7,0.28,0.28,0.28,0.28,0.28,0.28,0.28,0.28,0.27,0.27,0.27,0.27,.265,
      80.26,0.26,0.26,0.26,0.25,0.25,0.25,0.25/
        DO 1 IL=1,52
    1  RR(IL)=R(IL)
       RETURN
       END

       SUBROUTINE PC20(RR)
       DIMENSION R(52),RR(52)
       DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
      1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
      2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
      3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
      4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/0.25,0.25,0.25,0.25,.2
      555,0.26,0.26,0.26,0.26,.265,0.27,0.27,0.27,0.27,0.28,0.28,0.28,0.2
      68,0.29,0.29,0.29,0.29,.295,0.30,0.30,0.30,0.30,0.30,0.30,0.30,0.30
      7,0.29,0.29,0.29,0.29,0.29,0.28,0.28,0.28,0.28,0.26,0.26,0.26,0.26,
      8.255,0.25,0.25,0.25,0.25,0.25,0.25,0.25/
       DO 1 IL=1,52
    1  RR(IL)=R(IL)
       RETURN
       END

       SUBROUTINE PC25(RR)
       DIMENSION R(52),RR(52)
       DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
      1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
      2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
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     3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
     4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/0.24,0.24,0.24,0.24,0.
     525,0.26,0.26,0.26,0.26,.265,0.27,0.27,0.27,0.27,0.29,0.29,0.29,0.2
     69,0.30,0.30,0.30,0.30,.305,0.31,0.31,0.31,0.31,0.31,0.31,0.31,0.31
     7,0.29,0.29,0.29,0.29,0.29,0.28,0.28,0.28,0.28,0.26,0.26,0.26,0.26,
     8.255,0.25,0.25,.245,0.24,0.24,0.24,0.24/
      DO 1 IL=1,52
    1 RR(IL)=R(IL)
      RETURN
      END

      SUBROUTINE PC30(RR)
      DIMENSION R(52),RR(52)
      DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
     1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
     2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
     3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
     4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/0.24,0.24,0.24,0.24,.2
     545,0.25,0.25,0.25,0.25,0.26,0.27,0.27,0.27,0.27,0.29,0.29,0.29,0.2
     69,0.31,0.31,0.31,0.31,.315,0.32,0.32,0.32,0.32,0.31,0.31,0.31,0.31
     7,.305,0.30,0.30,0.30,0.30,0.28,0.28,0.28,0.28,0.26,0.26,0.26,0.26,
     80.24,0.24,0.24,0.24,0.23,0.23,0.23,0.23/
      DO 1 IL=1,52
    1 RR(IL)=R(IL)
      RETURN
      END

      SUBROUTINE  BCONST(RH,RAT,U2,B)
      DIMENSION B(52),RH(52),RAT(52),U2(52)
      DO 998 K=1,52
      ALA=U2(K)
      RHH=RH(K)
      RATT=RAT(K)
      IF(ALA.EQ.0.0) GO TO 1
      IF(ALA.LT.2.0.OR.ALA.GT.0.0) GO TO 2
      IF(ALA.EQ.2.0) GO TO 3
      IF(ALA.GT.2.0.AND.ALA.LT.4.0) GO TO 4
      IF(ALA.EQ.4.0) GO TO 5
      IF(ALA.GT.4.0.AND.ALA.LT.6.0) GO TO 6
      IF(ALA.EQ.6.0) GO TO 7
      IF(ALA.GT.6.0.AND.ALA.LT.8.0) GO TO 8
      IF(ALA.EQ.8.0 ) GO TO 9
      IF(ALA.GT.8.0.AND.ALA.LT.10.0) GO TO 10
      CALL B10(RHH,RATT,BB)
      B(K)=BB
      GO TO 999
    1 CONTINUE
      CALL B00(RHH,RATT,BB)
      B(K)=BB
      GO TO 999
    2 CONTINUE
      CALL B00(RHH,RATT,B1)
      CALL B02(RHH,RATT,B2)
      ANEW=ALA-0.0
      B(K)=B1+ANEW/2.0*(B2-B1)
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      GO TO 999
 3    CALL B02(RHH,RATT,BB)
      B(K)=BB
      GO TO 999
 4    CALL B02(RHH,RATT,B1)
      CALL B04(RHH,RATT,B2)
      ANEW=ALA-2.0
      B(K)=B1+ANEW/2.0*(B2-B1)
      GO TO 999
 5    CALL B04(RHH,RATT,BB)
      B(K)=BB
      GO TO 999
 6    CALL B04(RHH,RATT,B1)
      CALL B06(RHH,RATT,B2)
      ANEW=ALA-4.0
      B(K)=B1+ANEW/2.0*(B2-B1)
      GO TO 999
 7    CALL B06(RHH,RATT,BB)
      B(K)=BB
      GO TO 999
 8    CALL B06(RHH,RATT,B1)
      CALL B08(RHH,RATT,B2)
      ANEW=ALA-6.0
      B(K)=B1+ANEW/2.0*(B2-B1)
      GO TO 999
 9    CALL B08(RHH,RATT,BB)
      B(K)=BB
      GO TO 999
 10   CALL B08(RHH,RATT,B1)
      CALL B10(RHH,RATT,B2)
      ANEW=ALA-8.0
      B(K)=B1+ANEW/2.0*(B2-B1)
999   CONTINUE
998   CONTINUE
      RETURN
      END

      SUBROUTINE B00(R,RT,B)
      IF (RT.EQ.0.0) GO TO 1
      IF(RT.LT.0.2.AND.RT.GT.0.0) GO TO 2
      IF(RT.EQ.0.2) GO TO 3
      IF(RT.LT.0.4.AND.RT.GT.0.2) GO TO 4
      IF(RT.EQ.0.4) GO TO 5
      IF(RT.LT.0.6.AND.RT.GT.0.4) GO TO 6
      IF(RT.EQ.0.6) GO TO 7
      IF(RT.LT.0.8.AND.RT.GT.0.6) GO TO 8
      IF(RT.EQ.0.8) GO TO 9
      IF(RT.LT.1.0.AND.RT.GT.0.8) GO TO 10
      IF (RT.EQ.1.0) CALL B001(R,B)
      GO TO 99
1     CONTINUE
      CALL B000(R,B)
      GO TO 99
2     CALL B000(R,B1)
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      CALL B002(R,B2)
      ANEW=RT-0.0
      B=B1+(B2-B1)/0.2*ANEW
      GO TO 99
 3    CONTINUE
      CALL B002(R,B)
      GO TO 99
 4    CALL B002(R,B1)
      CALL B004(R,B2)
      ANEW=RT-0.2
      B=B1+(B2-B1)/0.2*ANEW
      GO TO 99
 5    CONTINUE
      CALL B004(R,B)
      GO TO 99
 6    CALL B004(R,B1)
      CALL B006(R,B2)
      ANEW=RT-0.4
      B=B1+(B2-B1)/0.2*ANEW
      GO TO 99
 7    CONTINUE
      CALL B006(R,B)
      GO TO 99
 8    CALL B006(R,B1)
      CALL B008(R,B2)
      ANEW=RT-0.6
      B=B1+(B2-B1)/0.2*ANEW
      GO TO 99
 9    CONTINUE
      CALL B008(R,B)
      GO TO 99
 10   CALL B008(R,B1)
      CALL B001(R,B2)
      ANEW=RT-0.8
      B=B1+(B2-B1)/0.2*ANEW
 99   CONTINUE
      RETURN
      END


      SUBROUTINE B000(ALA,AMN)
      DIMENSION R1(6),B(6)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/0.84,0.80,0.74,0.64,0.52,0.38/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
  5   CONTINUE
  2   AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
  6   RETURN
      END

      SUBROUTINE B002(ALA,AMN)
      DIMENSION R1(6),B(6)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
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     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.03,0.95,0.87,0.76,0.63,0.48/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
5     CONTINUE
2     AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
6     RETURN
      END

      SUBROUTINE B004(ALA,AMN)
      DIMENSION R1(6),B(6)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.22,1.01,1.01,0.88,0.74,0.57/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
5     CONTINUE
2     AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
6     RETURN
      END

      SUBROUTINE B006(ALA,AMN)
      DIMENSION R1(6),B(6)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.38,1.24,1.13,0.99,0.85,0.66/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
5     CONTINUE
2     AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
6     RETURN
      END

      SUBROUTINE B008(ALA,AMN)
      DIMENSION R1(6),B(6)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.54,1.37,1.25,1.09,0.94,0.75/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
5     CONTINUE
2     AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
6     RETURN
      END

      SUBROUTINE B001(ALA,AMN)
      DIMENSION R1(6),B(6)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.68,1.50,1.36,1.18,1.04,0.84/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
5      CONTINUE
2     AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
6     RETURN
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```
      END


      SUBROUTINE B02(R,RT,B)
      IF (RT.EQ.0.0) GO TO 1
      IF(RT.LT.0.2.AND.RT.GT.0.0) GO TO 2
      IF(RT.EQ.0.2) GO TO 3
      IF(RT.LT.0.4.AND.RT.GT.0.2) GO TO 4
      IF(RT.EQ.0.4) GO TO 5
      IF(RT.LT.0.6.AND.RT.GT.0.4) GO TO 6
      IF(RT.EQ.0.6) GO TO 7
      IF(RT.LT.0.8.AND.RT.GT.0.6) GO TO 8
      IF(RT.EQ.0.8) GO TO 9
      IF(RT.LT.1.0.AND.RT.GT.0.8) GO TO 10
      IF (RT.EQ.1.0) CALL B021(R,B)
      GO TO 99
1     CONTINUE
      CALL B020(R,B)
      GO TO 99
2     CALL B020(R,B1)
      CALL B022(R,B2)
      ANEW=RT-0.0
      B=B1+(B2-B1)/0.2*ANEW
      GO TO 99
3     CONTINUE
      CALL B022(R,B)
      GO TO 99
4     CALL B022(R,B1)
      CALL B024(R,B2)
      ANEW=RT-0.2
      B=B1+(B2-B1)/0.2*ANEW
      GO TO 99
5     CONTINUE
      CALL B024(R,B)
      GO TO 99
6     CALL B024(R,B1)
      CALL B026(R,B2)
      ANEW=RT-0.4
      B=B1+(B2-B1)/0.2*ANEW
      GO TO 99
7     CONTINUE
      CALL B026(R,B)
      GO TO 99
8     CALL B026(R,B1)
      CALL B028(R,B2)
      ANEW=RT-0.6
      B=B1+(B2-B1)/0.2*ANEW
      GO TO 99
9     CONTINUE
      CALL B028(R,B)
      GO TO 99
10    CALL B028(R,B1)
      CALL B021(R,B2)
      ANEW=RT-0.8
      B=B1+(B2-B1)/0.2*ANEW
```

```
 99  CONTINUE
     RETURN
     END


     SUBROUTINE B020(ALA,AMN)
     DIMENSION R1(6),B(6)
     DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
    1100.0/
     DATA B(1),B(2),B(3),B(4),B(5),B(6)/0.97,0.90,0.81,0.66,0.54,0.40/
     DO 5 I=1,6
     IF(ALA.LE.R1(I)) GO TO 2
  5  CONTINUE
  2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
  6  RETURN
     END

     SUBROUTINE B022(ALA,AMN)
     DIMENSION R1(6),B(6)
     DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
    1100.0/
     DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.19,1.08,0.96,0.84,0.66,0.50/
     DO 5 I=1,6
     IF(ALA.LE.R1(I)) GO TO 2
  5  CONTINUE
  2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
  6  RETURN
     END

     SUBROUTINE B024(ALA,AMN)
     DIMENSION R1(6),B(6)
     DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
    1100.0/
     DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.41,1.26,1.11,0.97,0.77,0.60/
     DO 5 I=1,6
     IF(ALA.LE.R1(I)) GO TO 2
  5  CONTINUE
  2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
  6  RETURN
     END

     SUBROUTINE B026(ALA,AMN)
     DIMENSION R1(6),B(6)
     DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
    1100.0/
     DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.60,1.42,1.25,1.09,0.89,0.70/
     DO 5 I=1,6
     IF(ALA.LE.R1(I)) GO TO 2
  5  CONTINUE
  2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
  6  RETURN
     END

     SUBROUTINE B028(ALA,AMN)
     DIMENSION R1(6),B(6)
```

```
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.79,1.59,1.39,1.21,1.01,0.79/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
    5 CONTINUE
    2 AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
    6 RETURN
      END

      SUBROUTINE B021(ALA,AMN)
      DIMENSION R1(6),B(6)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.98,1.74,1.52,1.31,1.11,0.89/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
    5 CONTINUE
    2 AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
    6 RETURN
      END

      SUBROUTINE B04(R,RT,B)
      IF (RT.EQ.0.0) GO TO 1
      IF(RT.LT.0.2.AND.RT.GT.0.0) GO TO 2
      IF(RT.EQ.0.2) GO TO 3
      IF(RT.LT.0.4.AND.RT.GT.0.2) GO TO 4
      IF(RT.EQ.0.4) GO TO 5
      IF(RT.LT.0.6.AND.RT.GT.0.4) GO TO 6
      IF(RT.EQ.0.6) GO TO 7
      IF(RT.LT.0.8.AND.RT.GT.0.6) GO TO 8
      IF(RT.EQ.0.8) GO TO 9
      IF(RT.LT.1.0.AND.RT.GT.0.8) GO TO 10
      IF (RT.EQ.1.0) CALL B041(R,B)
      GO TO 99
    1 CONTINUE
      CALL B040(R,B)
      GO TO 99
    2 CALL B040(R,B1)
      CALL B042(R,B2)
      ANEW=RT-0.0
      B=B1+(B2-B1)/0.2*ANEW
      GO TO 99
    3 CONTINUE
      CALL B042(R,B)
      GO TO 99
    4 CALL B042(R,B1)
      CALL B044(R,B2)
      ANEW=RT-0.2
      B=B1+(B2-B1)/0.2*ANEW
      GO TO 99
    5 CONTINUE
      CALL B044(R,B)
      GO TO 99
    6 CALL B044(R,B1)
```

```
      CALL B046(R,B2)
      ANEW=RT-0.4
      B=B1+(B2-B1)/0.2*ANEW
      GO TO 99
7     CONTINUE
      CALL B046(R,B)
      GO TO 99
8     CALL B046(R,B1)
      CALL B048(R,B2)
      ANEW=RT-0.6
      B=B1+(B2-B1)/0.2*ANEW
      GO TO 99
9     CONTINUE
      CALL B048(R,B)
      GO TO 99
10    CALL B048(R,B1)
      CALL B041(R,B2)
      ANEW=RT-0.8
      B=B1+(B2-B1)/0.2*ANEW
99    CONTINUE
      RETURN
      END

      SUBROUTINE B040(ALA,AMN)
      DIMENSION R1(6),B(6)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.08,0.98,0.87,0.72,0.56,0.42/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
5     CONTINUE
2     AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
6     RETURN
      END

      SUBROUTINE B042(ALA,AMN)
      DIMENSION R1(6),B(6)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.33,1.18,1.03,0.87,0.69,0.52/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
5     CONTINUE
2     AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
6     RETURN
      END

      SUBROUTINE B044(ALA,AMN)
      DIMENSION R1(6),B(6)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.56,1.38,1.19,1.02,0.52,0.62/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
5     CONTINUE
```

```
  2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
  6  RETURN
     END

     SUBROUTINE B046(ALA,AMN)
     DIMENSION R1(6),B(6)
     DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
    1100.0/
     DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.78,1.56,1.34,1.15,0.94,0.73/
     DO 5 I=1,6
     IF(ALA.LE.R1(I)) GO TO 2
  5  CONTINUE
  2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
  6  RETURN
     END

     SUBROUTINE B048(ALA,AMN)
     DIMENSION R1(6),B(6)
     DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
    1100.0/
     DATA B(1),B(2),B(3),B(4),B(5),B(6)/2.00,1.74,1.50,1.28,1.05,0.83/
     DO 5 I=1,6
     IF(ALA.LE.R1(I)) GO TO 2
  5  CONTINUE
  2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
  6  RETURN
     END

     SUBROUTINE B041(ALA,AMN)
     DIMENSION R1(6),B(6)
     DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
    1100.0/
     DATA B(1),B(2),B(3),B(4),B(5),B(6)/2.19,1.90,1.64,1.39,1.16,0.92/
     DO 5 I=1,6
     IF(ALA.LE.R1(I)) GO TO 2
  5  CONTINUE
  2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
  6  RETURN
     END

     SUBROUTINE B06(R,RT,B)
     IF (RT.EQ.0.0) GO TO 1
     IF(RT.LT.0.2.AND.RT.GT.0.0) GO TO 2
     IF(RT.EQ.0.2) GO TO 3
     IF(RT.LT.0.4.AND.RT.GT.0.2) GO TO 4
     IF(RT.EQ.0.4) GO TO 5
     IF(RT.LT.0.6.AND.RT.GT.0.4) GO TO 6
     IF(RT.EQ.0.6) GO TO 7
     IF(RT.LT.0.8.AND.RT.GT.0.6) GO TO 8
     IF(RT.EQ.0.8) GO TO 9
     IF(RT.LT.1.0.AND.RT.GT.0.8) GO TO 10
     IF (RT.EQ.1.0) CALL B061(R,B)
     GO TO 99
  1  CONTINUE
     CALL B060(R,B)
```

```
      GO TO 99
 2    CALL B060(R,B1)
      CALL B062(R,B2)
      ANEW=RT-0.0
      B=B1+(B2-B1)/0.2*ANEW
      GO TO 99
 3    CONTINUE
      CALL B062(R,B)
      GO TO 99
 4    CALL B062(R,B1)
      CALL B064(R,B2)
      ANEW=RT-0.2
      B=B1+(B2-B1)/0.2*ANEW
      GO TO 99
 5    CONTINUE
      CALL B064(R,B)
      GO TO 99
 6    CALL B064(R,B1)
      CALL B066(R,B2)
      ANEW=RT-0.4
      B=B1+(B2-B1)/0.2*ANEW
      GO TO 99
 7    CONTINUE
      CALL B066(R,B)
      GO TO 99
 8    CALL B066(R,B1)
      CALL B068(R,B2)
      ANEW=RT-0.6
      B=B1+(B2-B1)/0.2*ANEW
      GO TO 99
 9    CONTINUE
      CALL B068(R,B)
      GO TO 99
 10   CALL B068(R,B1)
      CALL B061(R,B2)
      ANEW=RT-0.8
      B=B1+(B2-B1)/0.2*ANEW
 99   CONTINUE
      RETURN
      END

      SUBROUTINE B060(ALA,AMN)
      DIMENSION R1(6),B(6)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.18,1.06,0.92,0.74,0.58,0.43/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
   5  CONTINUE
   2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
   6  RETURN
      END

      SUBROUTINE B062(ALA,AMN)
      DIMENSION R1(6),B(6)
```

```
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.44,1.27,1.10,0.91,0.72,0.54/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
    5 CONTINUE
    2 AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
    6 RETURN
      END

      SUBROUTINE B064(ALA,AMN)
      DIMENSION R1(6),B(6)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.70,1.48,1.27,1.06,0.85,0.64/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
    5 CONTINUE
    2 AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
    6 RETURN
      END

      SUBROUTINE B066(ALA,AMN)
      DIMENSION R1(6),B(6)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.94,1.67,1.44,1.21,0.97,0.75/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
    5 CONTINUE
    2 AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
    6 RETURN
      END

      SUBROUTINE B068(ALA,AMN)
      DIMENSION R1(6),B(6)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/2.18,1.86,1.59,1.34,1.09,0.85/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
    5 CONTINUE
    2 AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
    6 RETURN
      END

      SUBROUTINE B061(ALA,AMN)
      DIMENSION R1(6),B(6)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/2.39,2.03,1.74,1.46,1.20,0.95/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
    5 CONTINUE
    2 AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
```

```
    6  RETURN
       END

       SUBROUTINE B08(R,RT,B)
       IF (RT.EQ.0.0) GO TO 1
       IF(RT.LT.0.2.AND.RT.GT.0.0) GO TO 2
       IF(RT.EQ.0.2) GO TO 3
       IF(RT.LT.0.4.AND.RT.GT.0.2) GO TO 4
       IF(RT.EQ.0.4) GO TO 5
       IF(RT.LT.0.6.AND.RT.GT.0.4) GO TO 6
       IF(RT.EQ.0.6) GO TO 7
       IF(RT.LT.0.8.AND.RT.GT.0.6) GO TO 8
       IF(RT.EQ.0.8) GO TO 9
       IF(RT.LT.1.0.AND.RT.GT.0.8) GO TO 10
       IF (RT.EQ.1.0) CALL B081(R,B)
       GO TO 99
 1     CONTINUE
       CALL B080(R,B)
       GO TO 99
 2     CALL B080(R,B1)
       CALL B082(R,B2)
       ANEW=RT-0.0
       B=B1+(B2-B1)/0.2*ANEW
       GO TO 99
 3     CONTINUE
       CALL B082(R,B)
       GO TO 99
 4     CALL B082(R,B1)
       CALL B084(R,B2)
       ANEW=RT-0.2
       B=B1+(B2-B1)/0.2*ANEW
       GO TO 99
 5     CONTINUE
       CALL B084(R,B)
       GO TO 99
 6     CALL B084(R,B1)
       CALL B086(R,B2)
       ANEW=RT-0.4
       B=B1+(B2-B1)/0.2*ANEW
       GO TO 99
 7     CONTINUE
       CALL B086(R,B)
       GO TO 99
 8     CALL B086(R,B1)
       CALL B088(R,B2)
       ANEW=RT-0.6
       B=B1+(B2-B1)/0.2*ANEW
       GO TO 99
 9     CONTINUE
       CALL B088(R,B)
       GO TO 99
10     CALL B088(R,B1)
       CALL B081(R,B2)
       ANEW=RT-0.8
       B=B1+(B2-B1)/0.2*ANEW
```

```
99  CONTINUE
    RETURN
    END

    SUBROUTINE B080(ALA,AMN)
    DIMENSION R1(6),B(6)
    DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
   1100.0/
    DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.26,1.11,0.96,0.76,0.60,0.44/
    DO 5 I=1,6
    IF(ALA.LE.R1(I)) GO TO 2
 5  CONTINUE
 2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
 6  RETURN
    END

    SUBROUTINE B082(ALA,AMN)
    DIMENSION R1(6),B(6)
    DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
   1100.0/
    DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.52,1.34,1.14,0.93,0.74,0.55/
    DO 5 I=1,6
    IF(ALA.LE.R1(I)) GO TO 2
 5  CONTINUE
 2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
 6  RETURN
    END

    SUBROUTINE B084(ALA,AMN)
    DIMENSION R1(6),B(6)
    DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
   1100.0/
    DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.79,1.56,1.32,1.10,0.87,0.66/
    DO 5 I=1,6
    IF(ALA.LE.R1(I)) GO TO 2
 5  CONTINUE
 2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
 6  RETURN
    END

    SUBROUTINE B086(ALA,AMN)
    DIMENSION R1(6),B(6)
    DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
   1100.0/
    DATA B(1),B(2),B(3),B(4),B(5),B(6)/2.05,1.76,1.49,1.25,1.00,0.77/
    DO 5 I=1,6
    IF(ALA.LE.R1(I)) GO TO 2
 5  CONTINUE
 2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
 6  RETURN
    END

    SUBROUTINE B088(ALA,AMN)
    DIMENSION R1(6),B(6)
    DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
```

```
     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/2.30,1.96,1.66,1.39,1.12,0.87/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
    5 CONTINUE
    2 AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
    6 RETURN
      END

      SUBROUTINE B081(ALA,AMN)
      DIMENSION R1(6),B(6)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/2.54,2.14,1.82,1.52,1.24,0.98/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
    5 CONTINUE
    2 AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
    6 RETURN
      END

      SUBROUTINE B10(R,RT,B)
      IF (RT.EQ.0.0) GO TO 1
      IF(RT.LT.0.2.AND.RT.GT.0.0) GO TO 2
      IF(RT.EQ.0.2) GO TO 3
      IF(RT.LT.0.4.AND.RT.GT.0.2) GO TO 4
      IF(RT.EQ.0.4) GO TO 5
      IF(RT.LT.0.6.AND.RT.GT.0.4) GO TO 6
      IF(RT.EQ.0.6) GO TO 7
      IF(RT.LT.0.8.AND.RT.GT.0.6) GO TO 8
      IF(RT.EQ.0.8) GO TO 9
      IF(RT.LT.1.0.AND.RT.GT.0.8) GO TO 10
      IF (RT.EQ.1.0) CALL B101(R,B)
      GO TO 99
    1 CONTINUE
      CALL B100(R,B)
      GO TO 99
    2 CALL B100(R,B1)
      CALL B102(R,B2)
      ANEW=RT-0.0
      B=B1+(B2-B1)/0.2*ANEW
      GO TO 99
    3 CONTINUE
      CALL B102(R,B)
      GO TO 99
    4 CALL B102(R,B1)
      CALL B104(R,B2)
      ANEW=RT-0.2
      B=B1+(B2-B1)/0.2*ANEW
      GO TO 99
    5 CONTINUE
      CALL B104(R,B)
      GO TO 99
    6 CALL B104(R,B1)
      CALL B106(R,B2)
```

```
      ANEW=RT-0.4
      B=B1+(B2-B1)/0.2*ANEW
      GO TO 99
 7    CONTINUE
      CALL B106(R,B)
      GO TO 99
 8    CALL B106(R,B1)
      CALL B108(R,B2)
      ANEW=RT-0.6
      B=B1+(B2-B1)/0.2*ANEW
      GO TO 99
 9    CONTINUE
      CALL B108(R,B)
      GO TO 99
 10   CALL B108(R,B1)
      CALL B101(R,B2)
      ANEW=RT-0.8
      B=B1+(B2-B1)/0.2*ANEW
 99   CONTINUE
      RETURN
      END

      SUBROUTINE B100(ALA,AMN)
      DIMENSION R1(6),B(6)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.29,1.15,0.98,0.78,0.61,0.45/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
 5    CONTINUE
 2    AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
 6    RETURN
      END

      SUBROUTINE B102(ALA,AMN)
      DIMENSION R1(6),B(6)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.58,1.38,1.17,0.96,0.75,0.56/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
 5    CONTINUE
 2    AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
 6    RETURN
      END

      SUBROUTINE B104(ALA,AMN)
      DIMENSION R1(6),B(6)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
     1100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6)/1.86,1.61,1.36,1.13,0.89,0.68/
      DO 5 I=1,6
      IF(ALA.LE.R1(I)) GO TO 2
 5    CONTINUE
 2    AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
```

```
6  RETURN
   END

   SUBROUTINE B106(ALA,AMN)
   DIMENSION R1(6),B(6)
   DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
  1100.0/
   DATA B(1),B(2),B(3),B(4),B(5),B(6)/2.13,1.83,1.54,1.25,1.03,0.79/
   DO 5 I=1,6
   IF(ALA.LE.R1(I)) GO TO 2
5  CONTINUE
2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
6  RETURN
   END

   SUBROUTINE B108(ALA,AMN)
   DIMENSION R1(6),B(6)
   DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
  1100.0/
   DATA B(1),B(2),B(3),B(4),B(5),B(6)/2.39,2.03,1.71,1.43,1.15,0.89/
   DO 5 I=1,6
   IF(ALA.LE.R1(I)) GO TO 2
5  CONTINUE
2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
6  RETURN
   END

   SUBROUTINE B101(ALA,AMN)
   DIMENSION R1(6),B(6)
   DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6)/0.0,20.0,40.0,60.0,80.00,
  1100.0/
   DATA B(1),B(2),B(3),B(4),B(5),B(6)/2.63,2.22,1.86,1.56,1.27,1.00/
   DO 5 I=1,6
   IF(ALA.LE.R1(I)) GO TO 2
5  CONTINUE
2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/20.0
6  RETURN
   END
```

ANNEXURE 7.3

```
C     PROGRAMME FOR COMPUTING EVAPOTRANSPIRATION BY RADIATION METHOD

      DIMENSION UDAY(52),AM(52),R(52)
      DIMENSION RHMAX(52),RHMIN(52)
      DIMENSION TMEANC(52),W(52)
      DIMENSION ETO(52),STATION(6),POSMXN(52),RS(52),ACTUN(52),RA(52)
      OPEN(UNIT=1,FILE='GEN.DAT',STATUS='OLD')
      OPEN(UNIT=2,FILE='SUN.DAT',STATUS='OLD')
      OPEN(UNIT=3,FILE='TMEAN.DAT',STATUS='OLD')
      OPEN(UNIT=4,FILE='RHMAX.DAT',STATUS='OLD')
      OPEN(UNIT=5,FILE='RHMIN.DAT',STATUS='OLD')
      OPEN(UNIT=6,FILE='WIND.DAT',STATUS='OLD')
      OPEN(UNIT=7,FILE='RAD.OUT',STATUS='NEW')
      READ(1,3)MORE
C     MORE=NUMBER OF STATIONS FOR WHICH THE PROGRAMME IS TO BE RUN
 1    FORMAT(3F6.2)
 2    FORMAT(13F6.2)
 3    FORMAT(I1)
 4    FORMAT(8A4)
 5    FORMAT(13F6.3)
 11   FORMAT('                    ETo RESULTS WITH RADIATION METHOD ',//
     1,20X,34(1H-),//,1X,8A4,'LON.: ',F6.2,', LAT. : ',F6.2,', ALTITUDE
     2: ',F6.2,//,78(1H-),//)

 12   FORMAT ( 1X,'WEEK',1X,'ADJUSTMENT',1X, 'WEIGHING',1X,'ATMOSPHERE',
     11X,'  SOLAR  ',1X,'   MAX. ',1X,'EVAPOTRANSPIRATION',/1X,' NO.',1X
     2,'  FACTOR  ',1X,' FACTOR ',1X,'RADIATION ',1X,'RADIATION',1X,'POS
     3SIBLE',1X,'     RATE        ',1X,/6X,'    C     ',1X,'    W    ',1X
     4,'     Ra    ',1X,'    Rs    ',1X,'SUN SHINE','      ETo         ',/
     5,6X,'  mm/day  ',9X,'  mm/day  ',1X,' mm/day  ',1X,'HOURS (N)',1X,
     6'     mm/day   ',/ ,78(1H-)/)

 13   FORMAT(2X,I2, 3X,F6.4,4X,F6.4,4X,F6.3,5X,F5.2,4X,F6.3,8X,F6.2)
 14   FORMAT (' READING A LINE ')
 15   FORMAT(2X,'                COMPUTER READIND DATA ... ' )
 16   FORMAT (' COMPUTER IS THINKING ! !! ')
 17   FORMAT('                DOING ANALYSIS, PLEASE WAIT  ....  !!! ')
 18   FORMAT(//,78(1H-),/////)
 19   FORMAT(' NEXT THINKING GOING ON  ..... ! ')
 20   FORMAT ('             HIGHER LEVEL THINKING, DO NOT DISTURB ')
      DO 100 INO=1,MORE
      WRITE(*,15)
      READ(1,4)(STATION(I),I=1,6)
C     WRITE(*,14)
C     STATION(I)= NAME OF STATION FOR WHICH PROGRAMME IS TO RUN
      READ(1,1) ALATI,ALONGI,ALTI
C     WRITE(*,14)
C     ALATI= LATITUDE, ALONGI= LONGITUDE, ALTI= ALTITUDE OF THE PLACE
      READ(2,2)(ACTUN(I),I=1,52)
C     WRITE(*,14)
C     ACTUN(I)= ACTUAL SUN SHINE HOURS FOR Ith WEEK
      READ(3,2)(TMEANC(I),I=1,52)
```

```
C     WRITE(*,14)
C     TMEANC(I) = MEAN TEMPERATURE OF Ith WEEK IN CENTIGRADE
      READ(4,2)(RHMAX(I),I=1,52)
C     WRITE(*,14)
C     RHMAX(I)= MAXIMUM RELATIVE HUMIDITY % FOR Ith WEEK
      READ(5,2)(RHMIN(I),I=1,52)
C     WRITE(*,14)
C     RHMIN(I) = MINIMUM RELATIVE HUMIDITY % FOR Ith WEEK
      READ(6,5)(UDAY(I),I=1,52)
C     UDAY(I)= WIND VELOCITY DURING DAY IN m/sec FOR Ith WEEK
      WRITE(*,16)
      CALL RAD(ALATI,RA)
      WRITE(*,19)
      CALL MAXPN(ALATI,POSMXN)
      DO 201 II=1,52
 201  RS(II)= RA(II) * ( 0.25+ 0.5 * ACTUN(II) / POSMXN(II) )
      WRITE(*,20)
      CALL WFACT(ALTI,TMEANC,W)
      WRITE(*,17)
      DO 41 III=1,52
      R(III)=(RHMAX(III)+RHMIN(III))/2.0
  41  CONTINUE
      CALL AMN(R,UDAY,AM)
      DO 202 II=1,52
      ETO(II)=AM(II)*W(II)*RS(II)-0.3
 202  CONTINUE
      WRITE(7,11)(STATION(I),I=1,8),ALONGI,ALATI,ALTI
      WRITE(7,12)
      DO 203 II=1,52
      WRITE(7,13)II,AM(II),W(II),RA(II),RS(II),POSMXN(II),ETO(II)
 203  CONTINUE
      WRITE(7,18)
 100  CONTINUE
      STOP
      END

      SUBROUTINE RAD(ALA,RA)
      DIMENSION RA(52)
      DIMENSION RA1(52),RA2(52)
      IF(ALA.LT.18.0.OR.ALA.GT.26.0) GO TO 1
      IF(ALA.EQ.18.0) GO TO 2
      IF(ALA.GT.18.0.AND.ALA.LT.20.0) GO TO 3
      IF(ALA.EQ.20.0) GO TO 4
      IF(ALA.GT.20.0.AND.ALA.LT.22)GO TO 5
      IF(ALA.EQ.22.0) GO TO 6
      IF(ALA.GT.22.0.AND.ALA.LT.24)GO TO 7
      IF(ALA.EQ.24.0) GO TO 8
      IF(ALA.GT.24.0.AND.ALA.LT.26.0) GO TO 9
      CALL RA26(RA)
      GO TO 999
  1   CONTINUE
      WRITE(*,100)
      WRITE(*,101)
 100  FORMAT( ' PROGRAMME IS ONLY CAPABLE TO HANDLE THE VALUES OF LATITU
     1DE BETWEEN 18 N TO 26 N ')
```

```
101 FORMAT( ' AS LATITUDE VALUE IS OUT OF RANGE, PROGRAMME IS TERMINAT
   1ED NOW. ')
    WRITE(*,102)
102 FORMAT( ' PLEASE, MODIFY DATA & THEN RERUN THE PROGRAMME. ')
    STOP
2   CALL RA18(RA)
    GO TO 999
3   CALL RA18(RA1)
    CALL RA20(RA2)
    ANEW=ALA-18.0
    DO 15 I=1,52
15  RA(I)=RA1(I)+ANEW/2.0*(RA2(I)-RA1(I))
    GO TO 999
 4  CALL RA20(RA)
    GO TO 999
 5  CALL RA20(RA1)
    CALL RA22(RA2)
    ANEW=ALA-20.0
    DO 16 I=1,52
16  RA(I)=RA1(I)+ANEW/2.0*(RA2(I)-RA1(I))
    GO TO 999
 6  CALL RA22(RA)
    GO TO 999
 7  ANEW=ALA-22.0
    CALL RA22(RA1)
    CALL RA24(RA2)
    DO 17 I=1,52
17  RA(I)=RA1(I)+ANEW/2.0*(RA2(I)-RA1(I))
    GO TO 999
 8  CALL RA24(RA)
    GO TO 999
 9  ANEW=ALA-24.0
    CALL RA24(RA1)
    CALL RA26(RA2)
    DO 18 I=1,52
18  RA(I)=RA1(I)+ANEW/2.0*(RA2(I)-RA1(I))
999 RETURN
    END

    SUBROUTINE RA18(RR)
    DIMENSION R(52),RR(52)
    DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
   1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
   2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
   3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
   4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/11.6,11.6,11.6,11.6,12
   5.3,13.0,13.0,13.0,13.8,14.6,14.6,14.6,14.6,15.6,15.6,15.6,15.6,16.
   60,16.1,16.1,16.1,16.1,16.1,16.1,16.1,16.1,16.1,16.1,16.1,16.0
   7,15.8,15.8,15.8,15.6,14.9,14.9,14.9,14.9,13.6,13.6,13.6,13.6,12.8,
   812.0,12.0,12.0,11.9,11.1,11.1,11.1,11.1/
    DO 1 IL=1,52
 1  RR(IL)=R(IL)
    RETURN
    END
```

```
      SUBROUTINE RA20(RR)
      DIMENSION R(52),RR(52)
      DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
     1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
     2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
     3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
     4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/11.2,11.2,11.2,11.2,12
     5.4,12.7,12.7,12.7,13.3,14.4,14.4,14.4,14.4,15.6,15.6,15.6,15.6,16.
     62,16.3,16.3,16.3,16.4,16.4,16.4,16.4,16.4,16.3,16.3,16.3,16.3,16.0
     7,15.9,15.9,15.9,15.0,14.8,14.8,14.8,14.8,13.3,13.3,13.3,13.3,12.5,
     811.6,11.6,11.6,11.0,10.7,10.7,10.7,10.7/
      DO 1 IL=1,52
    1 RR(IL)=R(IL)
      RETURN
      END

      SUBROUTINE RA22(RR)
      DIMENSION R(52),RR(52)
      DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
     1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
     2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
     3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
     4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/10.7,10.7,10.7,10.7,11
     5.5,12.3,12.3,12.3,13.3,14.2,14.2,14.2,14.2,15.5,15.5,15.5,15.5,16.
     63,16.3,16.3,16.3,16.4,16.4,16.4,16.4,16.4,16.4,16.4,16.4,16.4,16.2
     7,15.8,15.8,15.8,15.6,14.6,14.6,14.6,14.6,13.0,13.0,13.0,13.0,12.1,
     811.1,11.1,11.1,10.6,10.2,10.2,10.2,10.2/
      DO 1 IL=1,52
    1 RR(IL)=R(IL)
      RETURN
      END

      SUBROUTINE RA24(RR)
      DIMENSION R(52),RR(52)
      DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
     1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
     2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
     3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
     4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/10.2,10.2,10.2,10.2,11
     5.0,11.9,11.9,11.9,12.9,13.9,13.9,13.9,13.9,15.4,15.4,15.4,15.4,16.
     64,16.4,16.4,16.4,16.5,16.6,16.6,16.6,16.6,16.5,16.5,16.5,16.5,16.3
     7,15.8,15.8,15.8,15.5,14.5,14.5,14.5,14.5,12.6,12.6,12.6,12.6,11.7,
     810.7,10.7,10.7,10.2,09.7,09.7,09.7,09.7/
      DO 1 IL=1,52
    1 RR(IL)=R(IL)
      RETURN
      END

      SUBROUTINE RA26(RR)
      DIMENSION R(52),RR(52)
      DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
     1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
     2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
     3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
     4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/09.8,09.8,09.8,09.8,10
```

```
     5.6,11.5,11.5,11.5,12.6,13.7,13.7,13.7,13.7,15.3,15.3,15.3,15.3,16.
     64,16.4,16.4,16.4,16.5,16.7,16.7,16.7,16.7,16.6,16.6,16.6,16.6,16.3
     7,15.7,15.7,15.7,14.7,14.3,14.3,14.3,14.3,12.3,12.3,12.3,12.3,11.3,
     810.3,10.3,10.3,10.0,09.3,09.3,09.3,09.3/
       DO 1 IL=1,52
  1  RR(IL)=R(IL)
     RETURN
     END

     SUBROUTINE MAXPN (ALA,POSMXN)
     DIMENSION POSMXN(52)
     DIMENSION POS1(52),POS2(52)
     IF(ALA.LT.15.0.OR.ALA.GT.30.0) GO TO 1
     IF(ALA.EQ.15.0) GO TO 2
     IF(ALA.GT.15.0.AND.ALA.LT.20.0) GO TO 3
     IF(ALA.EQ.20.0) GO TO 4
     IF(ALA.GT.20.0.AND.ALA.LT.25)GO TO 5
     IF(ALA.EQ.25.0) GO TO 6
     IF(ALA.GT.25.0.AND.ALA.LT.30)GO TO 7
     CALL PM30(POSMXN)
     GO TO 999
  1  CONTINUE
     WRITE(*,100)
     WRITE(*,101)
 100 FORMAT( ' PROGRAMME IS ONLY CAPABLE TO HANDLE THE VALUES OF LATITU
    1DE BETWEEN 15 N TO 30 N ')
 101 FORMAT( ' AS LATITUDE VALUE IS OUT OF RANGE, PROGRAMME IS TERMINAT
    1ED NOW. ')
     WRITE(*,102)
 102 FORMAT( ' PLEASE, MODIFY DATA & THEN RERUN THE PROGRAMME. ' )
     STOP
  2  CALL PM15(POSMXN)
     GO TO 999
  3  CALL PM15(POS1)
     CALL PM20(POS2)
     ANEW=ALA-15.0
     DO 15 I=1,52
 15  POSMXN(I)=POS1(I)+ANEW/5.0*(POS2(I)-POS1(I))
     GO TO 999
  4  CALL PM20(POSMXN)
     GO TO 999
  5  CALL PM20(POS1)
     CALL PM25(POS2)
     ANEW=ALA-20.0
     DO 16 I=1,52
 16  POSMXN(I)=POS1(I)+ANEW/5.0*(POS2(I)-POS1(I))
     GO TO 999
  6  CALL PM25(POSMXN)
     GO TO 999
  7  ANEW=ALA-25.0
     CALL PM25(POS1)
     CALL PM30(POS2)
     DO 17 I=1,52
 17  POSMXN(I)=POS1(I)+ANEW/5.0*(POS2(I)-POS1(I))
999  RETURN
```

```
      END

      SUBROUTINE PM15(RR)
      DIMENSION R(52),RR(52)
      DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
     1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
     2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
     3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
     4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/11.3,11.3,11.3,11.3,11
     5.4,11.6,11.6,11.6,11.8,12.0,12.0,12.0,12.0,12.5,12.5,12.5,12.5,12.
     68,12.8,12.8,12.8,12.9,13.0,13.0,13.0,13.0,12.9,12.9,12.9,12.9,12.8
     7,12.6,12.6,12.6,12.3,12.2,12.2,12.2,12.2,11.8,11.8,11.8,11.8,11.6,
     811.4,11.4,11.4,11.3,11.2,11.2,11.2,11.2/
       DO 1 IL=1,52
    1  RR(IL)=R(IL)
      RETURN
      END

      SUBROUTINE PM20(RR)
      DIMENSION R(52),RR(52)
      DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
     1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
     2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
     3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
     4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/11.0,11.0,11.0,11.0,11
     5.2,11.5,11.5,11.5,11.7,12.0,12.0,12.0,12.0,12.6,12.6,12.6,12.6,13.
     61,13.1,13.1,13.1,13.2,13.3,13.3,13.3,13.3,13.2,13.2,13.2,13.2,13.1
     7,12.8,12.8,12.8,12.5,12.3,12.3,12.3,12.3,11.7,11.7,11.7,11.7,11.5,
     811.2,11.2,11.2,11.1,10.9,10.9,10.9,10.9/
      DO 1 IL=1,52
    1  RR(IL)=R(IL)
      RETURN
      END

      SUBROUTINE PM25(RR)
      DIMENSION R(52),RR(52)
      DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
     1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
     2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
     3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
     4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/10.7,10.7,10.7,10.7,11
     5.0,11.3,11.3,11.3,11.6,12.0,12.0,12.0,12.0,12.7,12.7,12.7,12.7,13.
     63,13.3,13.3,13.3,13.5,13.7,13.7,13.7,13.7,13.5,13.5,13.5,13.5,13.4
     7,13.0,13.0,13.0,12.6,12.3,12.3,12.3,12.3,11.6,11.6,11.6,11.6,11.3,
     810.9,10.9,10.9,10.8,10.6,10.6,10.6,10.6/
      DO 1 IL=1,52
    1  RR(IL)=R(IL)
      RETURN
      END

      SUBROUTINE PM30(RR)
      DIMENSION R(52),RR(52)
      DATA R(1),R(2),R(3),R(4),R(5),R(6),R(7),R(8),R(9),R(10),R(11),R(12
     1),R(13),R(14),R(15),R(16),R(17),R(18),R(19),R(20),R(21),R(22),R(23
     2),R(24),R(25),R(26),R(27),R(28),R(29),R(30),R(31),R(32),R(33),R(34
```

```
     3),R(35),R(36),R(37),R(38),R(39),R(40),R(41),R(42),R(43),R(44),R(45
     4),R(46),R(47),R(48),R(49),R(50),R(51),R(52)/10.4,10.4,10.4,10.4,10
     5.7,11.1,11.1,11.1,11.6,12.0,12.0,12.0,12.0,12.9,12.9,12.9,12.9,13.
     66,13.6,13.6,13.6,13.8,14.0,14.0,14.0,14.0,13.9,13.9,13.9,13.9,13.7
     7,13.2,13.2,13.2,12.7,12.4,12.4,12.4,12.4,11.5,11.5,11.5,11.5,11.1,
     810.6,10.6,10.6,10.3,10.2,10.2,10.2,10.2/
      DO 1 IL=1,52
    1 RR(IL)=R(IL)
      RETURN
      END

      SUBROUTINE WFACT(ALT,TMEANC,W)
      DIMENSION TMEANC(52),W(52)
      DIMENSION W1(52),W2(52)
      IF(ALT.LT.0.0.OR.ALT.GT.500.0) GO TO 1
      IF(ALT.EQ.0.0) GO TO 2
      IF(ALT.GT.0.0.AND.ALT.LT.500.0) GO TO 3
      CALL W500(TMEANC,W)
      GO TO 999
    1 CONTINUE
      WRITE(*,100)
      WRITE(*,101)
  100 FORMAT( ' PROGRAMME IS ONLY CAPABLE TO HANDLE THE VALUES OF ALTITU
     1DE BETWEEN 0  m TO 500 m ')
  101 FORMAT( ' AS ALTITUDE VALUE IS OUT OF RANGE, PROGRAMME IS TERMINAT
     1ED NOW. ')
      WRITE(*,102)
  102 FORMAT( ' PLEASE, MODIFY DATA & THEN RERUN THE PROGRAMME. '  )
      STOP
    2 CALL W000(TMEANC,W)
      GO TO 999
    3 CALL W000(TMEANC,W1)
      CALL W500(TMEANC,W2)
      ANEW=ALT-0.0
      DO 15 I=1,52
   15 W(I)=W1(I)+ANEW/500.0*(W2(I)-W1(I))
  999 RETURN
      END

      SUBROUTINE W000(TMEANC,WFF)
      DIMENSION WF(52),T(20),WFF(52),TMEANC(52)
      DATA T(1),T(2),T(3),T(4),T(5),T(6),T(7),T(8),T(9),T(10),T(11),T(12
     1),T(13),T(14),T(15),T(16),T(17),T(18),T(19),T(20)/2.0,4.0,6.0,8.0,
     210.0,12.0,14.0,16.0,18.0,20.0,22.0,24.0,26.0,28.0,30.0,32.0,34.0,3
     36.0,38.0,40.0/
      DATA WF(1),WF(2),WF(3),WF(4),WF(5),WF(6),WF(7),WF(8),WF(9),WF(10),
     1WF(11),WF(12),WF(13),WF(14),WF(15),WF(16),WF(17),WF(18),WF(19),WF(
     220)/0.43,0.46,0.49,0.52,0.55,0.58,0.61,0.64,0.66,0.68,0.71,0.73,0.
     375,0.77,0.78,0.80,0,82,0.83,0.84,0.85/
      DO 1 I = 1 , 52
      IF(TMEANC(I).GT.40.0) WFF(I)=0.85
      IF(TMEANC(I).GT.40.0) GO TO 1
      DO 3 J=1,20
      IF(TMEANC(I).LE.T(J)) GO TO 2
    3 CONTINUE
```

```
2    WFF(I)=WF(J-1)+(TMEANC(I)-T(J-1))/2.0*(WF(J)-WF(J-1))
1    CONTINUE
     RETURN
     END

     SUBROUTINE W500(TMEANC,WFF)
     DIMENSION WF(52),T(20),WFF(52),TMEANC(52)
     DATA T(1),T(2),T(3),T(4),T(5),T(6),T(7),T(8),T(9),T(10),T(11),T(12
    1),T(13),T(14),T(15),T(16),T(17),T(18),T(19),T(20)/2.0,4.0,6.0,8.0,
    210.0,12.0,14.0,16.0,18.0,20.0,22.0,24.0,26.0,28.0,30.0,32.0,34.0,3
    36.0,38.0,40.0/
     DATA WF(1),WF(2),WF(3),WF(4),WF(5),WF(6),WF(7),WF(8),WF(9),WF(10),
    1WF(11),WF(12),WF(13),WF(14),WF(15),WF(16),WF(17),WF(18),WF(19),WF(
    220)/0.45,0.48,0.51,0.54,0.57,0.60,0.62,0.65,0.67,0.70,0.72,0.74,0.
    376,0.78,0.79,0.81,0.82,0.84,0.85,0.86/
     DO 1 I = 1 , 52
     IF(TMEANC(I).GT.40.0) WFF(I)=0.85
     IF(TMEANC(I).GT.40.0) GO TO 1
     DO 3 J=1,20
     IF(TMEANC(I).LE.T(J)) GO TO 2
3    CONTINUE
2    WFF(I)=WF(J-1)+(TMEANC(I)-T(J-1))/2.0*(WF(J)-WF(J-1))
1    CONTINUE
     RETURN
     END

     SUBROUTINE AMN(R,UDAY,AM)
     DIMENSION UDAY(52),AM(52),R(52)
     DIMENSION U(12)
     DO 99 II=1,52
     ALA=UDAY(II)
     AL=R(II)
     IF(ALA.GT.0.0.AND.ALA.LT.1) GO TO 1
     IF(ALA.EQ.1.0) GO TO 2
     IF(ALA.GT.1.0.AND.ALA.LT.2.0) GO TO 3
     IF(ALA.EQ.2.0) GO TO 4
     IF(ALA.GT.2.0.AND.ALA.LT.3.0) GO TO 5
     IF(ALA.EQ.3.0) GO TO 6
     IF(ALA.GT.3.0.AND.ALA.LT.4.0) GO TO 7
     IF(ALA.EQ.4.0) GO TO 8
     IF(ALA.GT.4.0.AND.ALA.LT.5.0)GO TO 9
     IF(ALA.EQ.5.0) GO TO 10
     IF(ALA.GT.5.0.AND.ALA.LT.6.0)GO TO 11
     IF(ALA.EQ.6.0) GO TO 12
     IF(ALA.GT.6.0.AND.ALA.LT.7.0)GO TO 13
     IF(ALA.EQ.7.0) GO TO 14
     IF(ALA.GT.7.0.AND.ALA.LT.8.0)GO TO 15
     IF(ALA.EQ.8.0) GO TO 16
     IF(ALA.GT.8.0.AND.ALA.LT.9.0)GO TO 17
     IF(ALA.EQ.9.0) GO TO 18
     IF(ALA.GT.9.0.AND.ALA.LT.10.0)GO TO 19
     CALL U10(AL,AMM)
     AM(II)=AMM
     GO TO 98
1    CONTINUE
```

```
      CALL U0(AL,AM1)
      CALL U1(AL,AM2)
      ANEW=ALA-0.0
      AM(II)=AM1+ANEW*(AM2-AM1)
      GO TO 98
    2 CALL U1(AL,AMM)
      AM(II)=AMM
      GO TO 98
    3 CONTINUE
      CALL U1(AL,AM1)
      CALL U2(AL,AM2)
      ANEW=ALA-1.0
      AM(II)=AM1+ANEW*(AM2-AM1)
      GO TO 98
    4 CALL U2(AL,AMM)
      AM(II)=AMM
      GO TO 98
    5 CONTINUE
      CALL U2(AL,AM1)
      CALL U3(AL,AM2)
      ANEW=ALA-2.0
      AM(II)=AM1+ANEW*(AM2-AM1)
      GO TO 98
    6 CALL U3(AL,AMM)
      AM(II)=AMM
      GO TO 98
    7 CALL U3(AL,AM1)
      CALL U4(AL,AM2)
      ANEW=ALA-3.0
      AM(II)=AM1+ANEW*(AM2-AM1)
      GO TO 98
    8 CALL U4(AL,AMM)
      AM(II)=AMM
      GO TO 98
    9 CALL U4(AL,AM1)
      CALL U5(AL,AM2)
      ANEW=ALA-4.0
      AM(II)=AM1+ANEW*(AM2-AM1)
      GO TO 98
   10 CALL U5(AL,AMM)
      AM(II)=AMM
      GO TO 98
   11 CALL U5(AL,AM1)
      CALL U6(AL,AM2)
      ANEW=ALA-5.0
      AM(II)=AM1+ANEW*(AM2-AM1)
      GO TO 98
   12 CALL U6(AL,AMM)
      AM(II)=AMM
      GO TO 98
   13 CALL U6(AL,AM1)
      CALL U7(AL,AM2)
      ANEW=ALA-6.0
      AM(II)=AM1+ANEW*(AM2-AM1)
      GO TO 98
```

```
14  CALL U7(AL,AMM)
    AM(II)=AMM
    GO TO 98
15  CALL U7(AL,AM1)
    CALL U8(AL,AM2)
    ANEW=ALA-7.0
    AM(II)=AM1+ANEW*(AM2-AM1)
    GO TO 98
16  CALL U8(AL,AMM)
    AM(II)=AMM
    GO TO 98
17  CALL U8(AL,AM1)
    CALL U9(AL,AM2)
    ANEW=ALA-8.0
    AM(II)=AM1+ANEW*(AM2-AM1)
    GO TO 98
18  CALL U9(AL,AMM)
    AM(II)=AMM
    GO TO 98
19  CALL U9(AL,AM1)
    CALL U10(AL,AM2)
    ANEW=ALA-9.0
    AM(II)=AM1+ANEW*(AM2-AM1)
98  CONTINUE
99  CONTINUE
    RETURN
    END

    SUBROUTINE U0(ALA,AMN)
    DIMENSION R1(10),B(11)
    DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6),R1(7),R1(8),R1(9),R1(10)
   1/10.0,20.0,30.0,40.0,50.0,60.0,70.0,80.0,90.0,100.0/
    DATA B(1),B(2),B(3),B(4),B(5),B(6),B(7),B(8),B(9),B(10)/1.04,1.02,
   10.99,0.95,0.91,0.87,0.82,0.76,0.7,0.64/
    IF(ALA.LE.10.0) AMN=1.04
    IF(ALA.LE.10.0) GO TO 6
    DO 5 I=1,10
    IF(ALA.LE.R1(I)) GO TO 2
5    CONTINUE
2   AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/10.0
6   RETURN
    END

    SUBROUTINE U1(ALA,AMN)
    DIMENSION R1(10),B(11),R(52)
    DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6),R1(7),R1(8),R1(9),R1(10)
   1/10.0,20.0,30.0,40.0,50.0,60.0,70.0,80.0,90.0,100.0/
    DATA B(1),B(2),B(3),B(4),B(5),B(6),B(7),B(8),B(9),B(10)/1.09,1.07,
   11.04,1.00,0.96,0.91,0.85,0.79,0.73,0.66/
     IF(ALA.LE.10.0) AMN=1.09
    IF(ALA.LE.10.0) GO TO 6
    DO 5 I=1,10
    IF(ALA.LE.R1(I)) GO TO 2
5    CONTINUE
2   AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/10.0
```

```
6  RETURN
   END

   SUBROUTINE U2(ALA,AMN)
   DIMENSION R1(10),B(11)
   DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6),R1(7),R1(8),R1(9),R1(10)
  1/10.0,20.0,30.0,40.0,50.0,60.0,70.0,80.0,90.0,100.0/
   DATA B(1),B(2),B(3),B(4),B(5),B(6),B(7),B(8),B(9),B(10)/1.13,1.11,
  11.08,1.04,0.99,0.94,0.88,0.81,0.74,0.67/
   IF(ALA.LE.10.0) AMN=1.13
   IF(ALA.LE.10.0) GO TO 6
   DO 5 I=1,10
   IF(ALA.LE.R1(I)) GO TO 2
5   CONTINUE
2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/10.0
6  RETURN
   END

   SUBROUTINE U3(ALA,AMN)
   DIMENSION R1(10),B(11)
   DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6),R1(7),R1(8),R1(9),R1(10)
  1/10.0,20.0,30.0,40.0,50.0,60.0,70.0,80.0,90.0,100.0/
   DATA B(1),B(2),B(3),B(4),B(5),B(6),B(7),B(8),B(9),B(10)/1.17,1.15,
  11.11,1.07,1.02,0.97,0.90,0.83,0.76,0.69/
   IF(ALA.LE.10.0) AMN=1.17
   IF(ALA.LE.10.0) GO TO 6
   DO 5 I=1,10
   IF(ALA.LE.R1(I)) GO TO 2
5   CONTINUE
2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/10.0
6  RETURN
   END

   SUBROUTINE U4(ALA,AMN)
   DIMENSION R1(10),B(11)
   DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6),R1(7),R1(8),R1(9),R1(10)
  1/10.0,20.0,30.0,40.0,50.0,60.0,70.0,80.0,90.0,100.0/
   DATA B(1),B(2),B(3),B(4),B(5),B(6),B(7),B(8),B(9),B(10)/1.21,1.18,
  11.14,1.10,1.05,0.99,0.92,0.85,0.78,0.70/
   IF(ALA.LE.10.0) AMN=1.21
   IF(ALA.LE.10.0) GO TO 6
   DO 5 I=1,10
   IF(ALA.LE.R1(I)) GO TO 2
5   CONTINUE
2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/10.0
6  RETURN
   END

   SUBROUTINE U5(ALA,AMN)
   DIMENSION R1(10),B(11)
   DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6),R1(7),R1(8),R1(9),R1(10)
  1/10.0,20.0,30.0,40.0,50.0,60.0,70.0,80.0,90.0,100.0/
   DATA B(1),B(2),B(3),B(4),B(5),B(6),B(7),B(8),B(9),B(10)/1.24,1.21,
  11.17,1.13,1.07,1.01,0.98,0.87,0.80,0.72/
   IF(ALA.LE.10.0) AMN=1.24
```

```
      IF(ALA.LE.10.0) GO TO 6
      DO 5 I=1,10
      IF(ALA.LE.R1(I)) GO TO 2
    5  CONTINUE
    2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/10.0
    6  RETURN
      END

      SUBROUTINE U6(ALA,AMN)
      DIMENSION R1(10),B(11)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6),R1(7),R1(8),R1(9),R1(10)
     1/10.0,20.0,30.0,40.0,50.0,60.0,70.0,80.0,90.0,100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6),B(7),B(8),B(9),B(10)/1.27,1.24,
     11.20,1.15,1.09,1.03,0.96,0.89,0.81,0.73/
      IF(ALA.LE.10.0) AMN=1.27
      IF(ALA.LE.10.0) GO TO 6
      DO 5 I=1,10
      IF(ALA.LE.R1(I)) GO TO 2
    5  CONTINUE
    2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/10.0
    6  RETURN
      END

      SUBROUTINE U7(ALA,AMN)
      DIMENSION R1(10),B(11)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6),R1(7),R1(8),R1(9),R1(10)
     1/10.0,20.0,30.0,40.0,50.0,60.0,70.0,80.0,90.0,100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6),B(7),B(8),B(9),B(10)/1.29,1.26,
     11.22,1.17,1.11,1.05,0.98,0.91,0.83,0.74/
      IF(ALA.LE.10.0) AMN=1.29
      IF(ALA.LE.10.0) GO TO 6
      DO 5 I=1,10
      IF(ALA.LE.R1(I)) GO TO 2
    5  CONTINUE
    2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/10.0
    6  RETURN
      END

      SUBROUTINE U8(ALA,AMN)
      DIMENSION R1(10),B(11)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6),R1(7),R1(8),R1(9),R1(10)
     1/10.0,20.0,30.0,40.0,50.0,60.0,70.0,80.0,90.0,100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6),B(7),B(8),B(9),B(10)/1.31,1.38,
     11.24,1.19,1.13,1.07,1.00,0.92,0.84,0.75/
      IF(ALA.LE.10.0) AMN=1.31
      IF(ALA.LE.10.0) GO TO 6
      DO 5 I=1,10
      IF(ALA.LE.R1(I)) GO TO 2
    5  CONTINUE
    2  AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/10.0
    6  RETURN
      END

      SUBROUTINE U9(ALA,AMN)
      DIMENSION R1(10),B(11)
```

```
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6),R1(7),R1(8),R1(9),R1(10)
     1/10.0,20.0,30.0,40.0,50.0,60.0,70.0,80.0,90.0,100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6),B(7),B(8),B(9),B(10)/1.34,1.30,
     11.26,1.21,1.15,1.09,1.01,0.93,0.85,0.76/
      IF(ALA.LE.10.0) AMN=1.34
      IF(ALA.LE.10.0) GO TO 6
      DO 5 I=1,10
      IF(ALA.LE.R1(I)) GO TO 2
    5 CONTINUE
    2 AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/10.0
    6 RETURN
      END

      SUBROUTINE U10(ALA,AMN)
      DIMENSION R1(10),B(11)
      DATA R1(1),R1(2),R1(3),R1(4),R1(5),R1(6),R1(7),R1(8),R1(9),R1(10)
     1/10.0,20.0,30.0,40.0,50.0,60.0,70.0,80.0,90.0,100.0/
      DATA B(1),B(2),B(3),B(4),B(5),B(6),B(7),B(8),B(9),B(10)/1.36,1.32,
     11.28,1.23,1.17,1.10,1.02,0.94,0.86,0.77/
      IF(ALA.LE.10.0) AMN=1.36
      IF(ALA.LE.10.0) GO TO 6
      DO 5 I=1,10
      IF(ALA.LE.R1(I)) GO TO 2
    5 CONTINUE
    2 AMN=B(I-1)+(ALA-R1(I-1))*(B(I)-B(I-1))/10.0
    6 RETURN
      END
```

ANNEXURE 7.4

```
C     PROGRAMME FOR COMPUTING EVAPOTRANSPIRATION BY PAN EVAPORATION METHOD

      DIMENSION UM(52),KP(52),EPAN(52),UK(52),ETO(52),STATION(6)
      DIMENSION RHMAX(52),RHMIN(52),RHMEAN(52)
      REAL KP
      OPEN(UNIT=1,FILE='GEN.DAT',STATUS='OLD')
      OPEN(UNIT=3,FILE='EPAN.DAT',STATUS='OLD')
      OPEN(UNIT=4,FILE='RHMAX.DAT',STATUS='OLD')
      OPEN(UNIT=5,FILE='RHMIN.DAT',STATUS='OLD')
      OPEN(UNIT=6,FILE='WIND.DAT',STATUS='OLD')
      OPEN(UNIT=7,FILE='PANEVP.OUT',STATUS='NEW')
      READ(1,3)MORE
C     MORE=NUMBER OF STATIONS FOR WHICH THE PROGRAMME IS TO BE RUN
 1    FORMAT(3F6.2)
 2    FORMAT(13F6.2)
 3    FORMAT(I1)
 4    FORMAT(6A4)
 5    FORMAT(13F6.3)
 6    FORMAT(F7.2)
 11   FORMAT('              ETo RESULTS WITH PAN EVAPORATION METHOD ',//
     1,14X,36(1H-),//,1X,6A4,'LON.: ',F6.2,', LAT. : ',F6.2,', ALTITUDE
     2: ',F6.2,//,78(1H-),//)
 12   FORMAT ( 1X,'WEEK',1X,'RH MEAN',1X, '  WIND  ',1X,'  WIND   ',
     11X,'CONSTANT',1X,'PAN EVAPORATION',1X,'EVAPOTRANSPIRATION',/,1X,'
     2NO.',1X,'   %    ',2X,'VELOCITY',1X,' VELOCITY ',1X,'   KP    ',1X,
     3'     RATE       ',1X,'       RATE       ',/,14X,' m/sec  ',1X,' Km
     4/day  ',10X,'     mm/day     ',1X,'       mm/day     ',/,78(1H-)/)
 13   FORMAT(2X,I2, 3X,F6.2,4X,F6.4,4X,F6.1,2X,F5.3,8X,F5.2,13X,F6.2)
 15   FORMAT(2X,'                COMPUTER READIND DATA ... ' )
 16   FORMAT ('  THINKING ! !! ')
 17   FORMAT('               DOING ANALYSIS, PLEASE WAIT  ....  !!! ')
 18   FORMAT(/,78(1H-),///////)
 20   FORMAT ('             HIGHER LEVEL THINKING, DO NOT DISTURB ')
      DO 100 INO=1,MORE
      WRITE(*,15)
      READ(1,4)(STATION(I),I=1,6)
C     STATION(I)= NAME OF STATION FOR WHICH PROGRAMME IS TO RUN
      READ(1,1) ALATI,ALONGI,ALTI
C     ALATI= LATITUDE, ALONGI= LONGITUDE, ALTI= ALTITUDE OF THE PLACE
      READ(1,6)DIST
C     DIST= DISTANCE OF WINDWARD SIDE FROM GREEN CROP IN m.
      READ(3,2)(EPAN(I),I=1,52)
C     EPAN(I) = WEEKLY PAN EVAPRATION VALUES mm/day
      READ(4,2)(RHMAX(I),I=1,52)
C     RHMAX(I)= MAXIMUM RELATIVE HUMIDITY % FOR Ith WEEK
      READ(5,2)(RHMIN(I),I=1,52)
C     RHMIN(I) = MINIMUM RELATIVE HUMIDITY % FOR Ith WEEK
      READ(6,5)(UM(I),I=1,52)
C     UM(I)= WIND VELOCITY DURING DAY IN m/sec FOR Ith WEEK
      WRITE(*,16)
      DO 151 JK=1,52
```

```
      UK(JK)=UM(JK)*86.4
151   RHMEAN(JK)=(RHMAX(JK)+RHMIN(JK))/2.0
      DO 152 JK=1,52
      R=RHMEAN(JK)
      U=UK(JK)
      CALL KPP(R,U,DIST,AKP)
      KP(JK)=AKP
152   CONTINUE
      DO 201 II=1,52
201   ETO(II)= KP(II) * EPAN(II)
      WRITE(*,20)
      WRITE(7,11)(STATION(I),I=1,6),ALONGI,ALATI,ALTI
      WRITE(7,12)
      DO 203 II=1,52
      WRITE(7,13)II,RHMEAN(II),UM(II),UK(II),KP(II),EPAN(II),ETO(II)
203   CONTINUE
      WRITE(7,18)
100   CONTINUE
      STOP
      END

      SUBROUTINE KPP(R1,U1,DIST,AKP1)
      IF(U1.LT.175.0) GO TO 1
      IF(U1.GE.175.0.AND.U1.LT.425.0) GO TO 2
      IF(U1.GE.425.0.AND.U1.LT.700.0) GO TO 3
      CALL KPG700(R1,DIST,AKP1)
      GO TO 999
 1    CONTINUE
      CALL KP175(R1,DIST,AKP1)
      GO TO 999
 2    CALL KP425(R1,DIST,AKP1)
      GO TO 999
 3    CALL KP700(R1,DIST,AKP1)
999   RETURN
      END

      SUBROUTINE KP175(R,D,AK)
      IF(D.EQ.1.0) CALL KP1175(R,AK)
      IF(D.EQ.1.0) GO TO 50
      IF(D.GT.1.0.AND.D.LT.10.0 ) GO TO 1
      IF(D.EQ.10.0) CALL KP2175(R,AK)
      IF(D.EQ.10.0) GO TO 50
      IF(D.GT.10.0.AND.D.LT.100.0 ) GO TO 2
      IF(D.EQ.100.0) CALL KP3175(R,AK)
      IF(D.EQ.100.0) GO TO 50
      IF(D.GT.100.0.AND.D.LT.1000.0 ) GO TO 3
      IF(D.GE.1000.0) CALL KP4175(R,AK)
      GO TO 50
 1    CALL KP1175(R,AK1)
      CALL KP2175(R,AK2)
      AK=AK1+(AK2-AK1)*(D-1)/9.0
      GO TO 50
 2    CALL KP2175 (R,AK1)
      CALL KP3175 (R,AK2)
      AK=AK1+(AK2-AK1)*(D-10)/90.0
```

```
      GO TO 50
3     CALL KP3175 (R,AK1)
      CALL KP4175 (R,AK2)
      AK=AK1+(AK2-AK1)*(D-100)/900.0
50    RETURN
      END

      SUBROUTINE KP425(R,D,AK)
      IF(D.EQ.1.0) CALL KP1425(R,AK)
      IF(D.EQ.1.0) GO TO 50
      iF(D.GT.1.0.AND.D.LT.10.0 ) GO TO 1
      IF(D.EQ.10.0) CALL KP2425(R,AK)
      IF(D.EQ.10.0) GO TO 50
      iF(D.GT.10.0.AND.D.LT.100.0 ) GO TO 2
      IF(D.EQ.100.0) CALL KP3425(R,AK)
      IF(D.EQ.100.0) GO TO 50
      iF(D.GT.100.0.AND.D.LT.1000.0 ) GO TO 3
      IF(D.GE.1000.0) CALL KP4425(R,AK)
      GO TO 50
1     CALL KP1425(R,AK1)
      CALL KP2425(R,AK2)
      AK=AK1+(AK2-AK1)*(D-1)/9.0
      GO TO 50
2     CALL KP2425 (R,AK1)
      CALL KP3425 (R,AK2)
      AK=AK1+(AK2-AK1)*(D-10)/90.0
      GO TO 50
3     CALL KP3425 (R,AK1)
      CALL KP4425 (R,AK2)
      AK=AK1+(AK2-AK1)*(D-100)/900.0
50    RETURN
      END

      SUBROUTINE KP700(R,D,AK)
      IF(D.EQ.1.0) CALL KP1700(R,AK)
      IF(D.EQ.1.0) GO TO 50
      iF(D.GT.1.0.AND.D.LT.10.0 ) GO TO 1
      IF(D.EQ.10.0) CALL KP2700(R,AK)
      IF(D.EQ.10.0) GO TO 50
      iF(D.GT.10.0.AND.D.LT.100.0 ) GO TO 2
      IF(D.EQ.100.0) CALL KP3700(R,AK)
      IF(D.EQ.100.0) GO TO 50
      iF(D.GT.100.0.AND.D.LT.1000.0 ) GO TO 3
      IF(D.GE.1000.0) CALL KP4700(R,AK)
      GO TO 50
1     CALL KP1700(R,AK1)
      CALL KP2700(R,AK2)
      AK=AK1+(AK2-AK1)*(D-1)/9.0
      GO TO 50
2     CALL KP2700 (R,AK1)
      CALL KP3700 (R,AK2)
      AK=AK1+(AK2-AK1)*(D-10)/90.0
      GO TO 50
3     CALL KP3700 (R,AK1)
      CALL KP4700 (R,AK2)
```

```
    AK=AK1+(AK2-AK1)*(D-100)/900.0
50  RETURN
    END

    SUBROUTINE KPG700(R,D,AK)
    IF(D.EQ.1.0) CALL KPG1700(R,AK)
    IF(D.EQ.1.0) GO TO 50
    iF(D.GT.1.0.AND.D.LT.10.0 ) GO TO 1
    IF(D.EQ.10.0) CALL KPG2700(R,AK)
    IF(D.EQ.10.0) GO TO 50
    iF(D.GT.10.0.AND.D.LT.100.0 ) GO TO 2
    IF(D.EQ.100.0) CALL KPG3700(R,AK)
    IF(D.EQ.100.0) GO TO 50
    iF(D.GT.100.0.AND.D.LT.1000.0 ) GO TO 3
    IF(D.GE.1000.0) CALL KPG4700(R,AK)
    GO TO 50
1   CALL KPG1700(R,AK1)
    CALL KPG2700(R,AK2)
    AK=AK1+(AK2-AK1)*(D-1)/9.0
    GO TO 50
2   CALL KPG2700 (R,AK1)
    CALL KPG3700 (R,AK2)
    AK=AK1+(AK2-AK1)*(D-10)/90.0
    GO TO 50
3   CALL KPG3700 (R,AK1)
    CALL KPG4700 (R,AK2)
    AK=AK1+(AK2-AK1)*(D-100)/900.0
50  RETURN
    END

    SUBROUTINE KP1175(R,AK)
    DIMENSION RH(3),D(4)
    IF(R.LT.40.0)AK=0.55
    IF(R.GE.40.0.AND.R.LT.70.0)AK=0.65
    IF(R.GT.70.0)AK=0.75
    RETURN
    END

    SUBROUTINE KP2175(R,AK)
    DIMENSION RH(3),D(4)
    IF(R.LT.40.0)AK=0.65
    IF(R.GE.40.0.AND.R.LT.70.0)AK=0.75
    IF(R.GT.70.0)AK=0.85
    RETURN
    END

    SUBROUTINE KP3175(R,AK)
    DIMENSION RH(3),D(4)
    IF(R.LT.40.0)AK=0.70
    IF(R.GE.40.0.AND.R.LT.70.0)AK=0.80
    IF(R.GT.70.0)AK=0.85
    RETURN
    END

    SUBROUTINE KP4175(R,AK)
```

```
      DIMENSION RH(3),D(4)
      IF(R.LT.40.0)AK=0.75
      IF(R.GE.40.0)AK=0.85
      IF(R.GT.70.0)AK=0.85
      RETURN
      END

      SUBROUTINE KP1425(R,AK)
      DIMENSION RH(3),D(4)
      IF(R.LT.40.0)AK=0.50
      IF(R.GE.40.0.AND.R.LT.70.0)AK=0.60
      IF(R.GT.70.0)AK=0.65
      RETURN
      END

      SUBROUTINE KP2425(R,AK)
      DIMENSION RH(3),D(4)
      IF(R.LT.40.0)AK=0.60
      IF(R.GE.40.0.AND.R.LT.70.0)AK=0.70
      IF(R.GT.70.0)AK=0.75
      RETURN
      END

      SUBROUTINE KP3425(R,AK)
      DIMENSION RH(3),D(4)
      IF(R.LT.40.0)AK=0.65
      IF(R.GE.40.0.AND.R.LT.70.0)AK=0.75
      IF(R.GT.70.0)AK=0.80
      RETURN
      END

      SUBROUTINE KP4425(R,AK)
      DIMENSION RH(3),D(4)
      IF(R.LT.40.0)AK=0.70
      IF(R.GE.40.0)AK=0.80
      RETURN
      END

      SUBROUTINE KP1700(R,AK)
      DIMENSION RH(3),D(4)
      IF(R.LT.40.0)AK=0.45
      IF(R.GE.40.0.AND.R.LT.70.0)AK=0.50
      IF(R.GT.70.0)AK=0.60
      RETURN
      END

      SUBROUTINE KP2700(R,AK)
      DIMENSION RH(3),D(4)
      IF(R.LT.40.0)AK=0.55
      IF(R.GE.40.0.AND.R.LT.70.0)AK=0.60
      IF(R.GT.70.0)AK=0.65
      RETURN
      END

      SUBROUTINE KP3700(R,AK)
```

```
      DIMENSION RH(3),D(4)
      IF(R.LT.40.0)AK=0.60
      IF(R.GE.40.0.AND.R.LT.70.0)AK=0.65
      IF(R.GT.70.0)AK=0.70
      RETURN
      END

      SUBROUTINE KP4700(R,AK)
      DIMENSION RH(3),D(4)
      IF(R.LT.40.0)AK=0.65
      IF(R.GE.40.0.AND.R.LT.70.0)AK=0.70
      IF(R.GE.70.0)AK=0.75
      RETURN
      END

      SUBROUTINE KPG1700(R,AK)
      DIMENSION RH(3),D(4)
      IF(R.LT.40.0)AK=0.40
      IF(R.GE.40.0.AND.R.LT.70.0)AK=0.45
      IF(R.GT.70.0)AK=0.50
      RETURN
      END

      SUBROUTINE KPG2700(R,AK)
      DIMENSION RH(3),D(4)
      IF(R.LT.40.0)AK=0.45
      IF(R.GE.40.0.AND.R.LT.70.0)AK=0.55
      IF(R.GT.70.0)AK=0.60
      RETURN
      END

      SUBROUTINE KPG3700(R,AK)
      DIMENSION RH(3),D(4)
      IF(R.LT.40.0)AK=0.50
      IF(R.GE.40.0.AND.R.LT.70.0)AK=0.60
      IF(R.GT.70.0)AK=0.65
      RETURN
      END

      SUBROUTINE KPG4700(R,AK)
      DIMENSION RH(3),D(4)
      IF(R.LT.40.0)AK=0.55
      IF(R.GE.40.0.AND.R.LT.70.0)AK=0.60
      IF(R.GE.70.0)AK=0.65
      RETURN
      END
```

ANNEXURE 7.5

ETo RESULTS FOR DANTIWADA - PENMAN METHOD

WEEK NO	C	W	Rn	f(u)	(ea-ed)	ETo mm/day
1	1.00	.67	2.66	.495	11.42	3.66
2	.99	.67	2.62	.556	12.32	3.96
3	1.00	.67	2.64	.497	11.89	3.73
4	.99	.67	2.64	.515	12.53	3.87
5	1.00	.67	2.99	.489	12.44	4.00
6	1.00	.68	3.31	.512	13.59	4.46
7	1.01	.69	3.45	.532	14.07	4.72
8	1.00	.71	3.52	.563	15.08	4.98
9	.99	.72	3.81	.520	17.19	5.20
10	1.01	.74	4.38	.527	19.82	6.01
11	1.00	.75	4.47	.583	21.52	6.49
12	1.00	.73	4.36	.608	19.02	6.30
13	1.00	.77	4.40	.579	24.17	6.60
14	.98	.78	5.21	.617	25.03	7.37
15	.98	.78	5.24	.598	28.06	7.58
16	.99	.79	5.41	.660	27.51	8.00
17	1.00	.80	5.57	.690	28.13	8.36
18	.99	.80	5.86	.721	27.36	8.58
19	.99	.81	6.01	.780	27.46	8.87
20	.99	.81	6.07	.812	27.34	9.03
21	1.01	.81	6.33	.829	25.82	9.18
22	1.00	.81	6.26	.885	23.66	8.99
23	.99	.82	6.42	.961	23.69	9.33
24	.96	.81	5.98	1.038	22.63	8.93
25	.95	.81	5.53	1.079	19.13	8.06
26	.95	.80	5.42	1.086	16.61	7.57
27	1.05	.79	5.25	1.053	14.43	7.66
28	1.06	.79	5.34	1.022	13.09	7.52
29	1.08	.78	5.04	.849	10.39	6.34
30	1.07	.78	4.27	.926	10.63	5.86
31	1.09	.78	4.42	.899	8.90	5.67
32	1.09	.77	4.42	.783	8.53	5.37
33	1.09	.78	4.11	.659	8.46	4.84
34	1.04	.77	3.39	.703	9.49	4.31
35	1.07	.78	4.25	.677	10.15	5.18
36	1.08	.78	4.90	.697	10.61	5.89
37	1.08	.78	4.94	.604	12.67	5.97
38	1.07	.78	5.16	.535	15.80	6.30
39	1.07	.78	5.02	.524	16.62	6.21
40	1.02	.78	4.23	.468	19.02	5.34
41	1.02	.78	4.03	.524	20.74	5.67
42	1.02	.77	4.05	.544	20.83	5.79
43	1.01	.76	3.86	.486	20.67	5.35
44	.98	.76	3.24	.492	20.87	4.83
45	.97	.74	2.83	.424	19.13	4.07
46	.99	.74	2.94	.441	17.22	4.09
47	.99	.73	2.93	.462	15.54	4.05
48	.99	.71	2.66	.500	14.18	3.92
49	.99	.69	2.38	.481	13.59	3.59
50	.99	.69	2.39	.505	12.19	3.53
51	.99	.68	2.38	.497	12.18	3.51
52	.99	.67	2.42	.529	11.43	3.56

ANNEXURE 7.5

ETo RESULTS FOR DANTIWADA - BLANEY - CRIDDLE METHOD

WEEK NO.	CONSTANT a	RH MIN %	CONSTANT b	T MEAN °C	P CONSTANT	ETo mm/day
1	-2.1659	29.90	1.453	18.35	.241	3.60
2	-2.1739	26.97	1.500	18.90	.241	3.87
3	-2.2090	25.93	1.504	18.20	.241	3.73
4	-2.2150	25.62	1.518	18.85	.241	3.89
5	-2.1639	26.07	1.470	18.70	.251	3.95
6	-2.1207	22.79	1.467	19.40	.260	4.33
7	-2.1496	25.31	1.483	20.65	.260	4.60
8	-2.1632	26.86	1.496	21.80	.260	4.85
9	-2.0900	24.28	1.441	23.10	.260	4.89
10	-2.1697	20.41	1.522	24.50	.265	5.60
11	-2.1931	19.62	1.570	25.95	.270	6.26
12	-2.1646	19.66	1.561	26.35	.270	6.32
13	-2.1817	18.41	1.567	27.50	.270	6.56
14	-2.1606	20.31	1.558	28.55	.270	6.73
15	-2.1892	18.61	1.581	30.00	.289	7.76
16	-2.1889	19.59	1.605	30.70	.289	8.06
17	-2.2172	18.69	1.647	31.50	.289	8.48
18	-2.1291	19.72	1.588	31.55	.289	8.19
19	-2.1058	22.52	1.578	32.90	.299	8.80
20	-2.1090	23.69	1.587	33.05	.299	8.89
21	-2.1319	25.38	1.599	33.30	.299	9.00
22	-2.0527	30.59	1.519	33.15	.299	8.49
23	-2.0522	34.04	1.519	33.50	.304	8.74
24	-1.9376	37.50	1.424	33.05	.309	8.26
25	-1.7905	43.25	1.285	32.40	.309	7.29
26	-1.7388	48.11	1.223	31.55	.309	6.76
27	-1.6719	54.68	1.135	31.10	.309	6.14
28	-1.6948	54.89	1.143	30.20	.309	6.03
29	-1.5883	62.89	.991	29.35	.309	4.99
30	-1.4228	63.54	.893	29.30	.309	4.50
31	-1.4478	67.11	.877	28.90	.309	4.31
32	-1.4902	67.21	.886	28.20	.290	3.90
33	-1.4130	67.96	.816	28.55	.290	3.59
34	-1.9024	63.68	1.145	28.50	.290	3.75
35	-1.5129	61.07	.926	29.10	.290	4.23
36	-1.7675	59.79	1.092	28.65	.290	4.94
37	-1.8346	52.32	1.151	28.75	.280	5.01
38	-1.9549	43.82	1.254	29.50	.280	5.62
39	-1.9293	42.39	1.243	29.45	.280	5.57
40	-2.0418	35.29	1.335	29.55	.280	6.03
41	-2.0666	28.32	1.406	28.95	.260	5.73
42	-2.1340	27.46	1.465	27.90	.260	5.80
43	-2.0958	25.93	1.424	27.15	.260	5.49
44	-2.0715	22.93	1.422	26.30	.260	5.36
45	-2.1066	25.68	1.406	25.15	.255	4.91
46	-2.0986	29.46	1.390	24.60	.250	4.61
47	-2.0993	30.36	1.394	23.20	.250	4.41
48	-2.0957	29.75	1.410	21.75	.246	4.14
49	-2.1315	28.25	1.433	20.65	.241	3.92
50	-2.0719	32.50	1.381	20.00	.241	3.66
51	-2.0901	30.46	1.401	19.70	.241	3.68
52	-2.1178	32.32	1.421	18.95	.241	3.61

ANNEXURE 7.5

ETo RESULTS FOR DANTIWADA - RADIATION METHOD

WEEK NO	C mm/day	W	Ra mm/day	Rs mm/day	N HOURS	ETo mm/day
1	.9772	.6666	10.136	7.02	10.741	4.27
2	.9967	.6735	10.136	6.99	10.741	4.39
3	.9886	.6654	10.136	7.15	10.741	4.40
4	.9944	.6723	10.136	7.17	10.741	4.50
5	.9904	.6712	10.936	7.47	11.027	4.67
6	1.0052	.6677	11.836	7.74	11.327	4.90
7	.9989	.6943	11.836	7.98	11.327	5.23
8	1.0043	.7104	11.836	8.10	11.327	5.48
9	1.0098	.7231	12.852	8.25	11.614	5.73
10	1.0266	.7371	13.868	9.34	12.000	6.77
11	1.0364	.7521	13.868	9.48	12.000	7.09
12	1.0405	.7561	13.868	9.29	12.000	7.01
13	1.0430	.7671	13.868	9.37	12.000	7.19
14	1.0440	.7761	15.384	10.29	12.686	8.04
15	1.0496	.7831	15.384	10.45	12.686	8.29
16	1.0460	.7891	15.384	10.49	12.686	8.35
17	1.0464	.7981	15.384	10.67	12.686	8.61
18	1.0438	.7981	16.400	10.69	13.273	8.61
19	1.0324	.8099	16.400	10.60	13.273	8.56
20	1.0335	.8115	16.400	10.67	13.273	8.65
21	1.0170	.8141	16.400	10.91	13.273	8.74
22	1.0047	.8124	16.500	10.51	13.459	8.28
23	1.0105	.8158	16.616	10.71	13.646	8.52
24	1.0146	.8115	16.616	9.88	13.646	7.83
25	.9865	.8056	16.616	8.86	13.646	6.74
26	.9617	.7981	16.616	8.60	13.646	6.30
27	.9305	.7931	16.516	8.23	13.459	5.78
28	.9168	.7851	16.516	8.43	13.459	5.77
29	.8640	.7796	16.516	7.83	13.459	4.98
30	.8758	.7796	16.516	6.49	13.459	4.13
31	.8458	.7771	16.300	6.73	13.359	4.13
32	.8356	.7741	15.784	6.86	12.973	4.14
33	.8192	.7756	15.784	6.28	12.973	3.69
34	.8454	.7756	15.784	6.34	12.973	4.16
35	.8504	.7761	15.372	6.65	12.586	4.09
36	.8610	.7761	14.468	8.06	12.300	5.09
37	.8814	.7766	14.468	8.32	12.300	5.39
38	.9102	.7806	14.468	8.92	12.300	6.04
39	.9176	.7801	14.468	8.69	12.300	5.92
40	.9396	.7806	12.552	8.06	11.614	5.61
41	.9763	.7776	12.552	8.02	11.614	5.79
42	.9937	.7711	12.552	8.42	11.614	6.15
43	.9921	.7641	12.552	8.14	11.614	5.87
44	1.0067	.7561	11.636	7.33	11.327	5.28
45	.9863	.7441	10.636	6.95	10.941	4.80
46	.9732	.7391	10.636	6.99	10.941	4.73
47	.9731	.7241	10.636	7.02	10.941	4.65
48	.9800	.7091	10.168	6.68	10.841	4.34
49	.9816	.6943	9.636	6.47	10.641	4.11
50	.9708	.6850	9.636	6.27	10.641	3.87
51	.9732	.6827	9.636	6.32	10.641	3.90
52	.9742	.6735	9.636	6.49	10.641	3.96

ANNEXURE 7.5

ETo RESULTS FOR DANTIWADA - PAN EVAPORATION METHOD

WEEK NO	RH MEAN %	WIND m/sec	WIND Km/day	CONSTANT KP	EVAPO. mm/day	ETo mm/day
1	46.05	1.0400	89.9	.800	4.21	3.37
2	43.74	1.3200	114.0	.800	4.29	3.43
3	43.32	1.0500	90.7	.800	4.34	3.47
4	42.61	1.1300	97.6	.800	4.77	3.82
5	42.49	1.0100	87.3	.800	5.05	4.04
6	39.79	1.1100	95.9	.700	5.55	3.88
7	42.26	1.2100	104.5	.800	5.70	4.56
8	42.23	1.3500	116.6	.800	6.12	4.90
9	39.04	1.1500	99.4	.700	6.75	4.72
10	35.25	1.1900	102.8	.700	7.63	5.34
11	35.31	1.4400	124.4	.700	8.43	5.90
12	35.48	1.5600	134.8	.700	8.74	6.12
13	33.46	1.4200	122.7	.700	9.50	6.65
14	35.01	1.6000	138.2	.700	10.75	7.53
15	32.71	1.5100	130.5	.700	11.34	7.94
16	36.50	1.8000	155.5	.700	11.95	8.36
17	37.80	1.9400	167.6	.700	12.25	8.57
18	39.66	2.0800	179.7	.650	12.35	8.03
19	43.61	2.3500	203.0	.750	12.29	9.22
20	44.30	2.5000	216.0	.750	12.74	9.56
21	48.09	2.5800	222.9	.750	13.52	0.14
22	52.04	2.8300	244.5	.750	13.64	0.23
23	52.87	3.1800	274.8	.750	13.55	0.16
24	53.90	3.5400	305.9	.750	12.09	9.07
25	59.67	3.7300	322.3	.750	12.20	9.15
26	63.35	3.7600	324.9	.750	10.42	7.82
27	67.39	3.6100	311.9	.750	9.43	7.07
28	68.94	3.4700	299.8	.750	9.05	6.79
29	74.19	2.6700	230.7	.800	7.73	6.18
30	73.52	3.0200	260.9	.800	6.70	5.36
31	77.46	2.9000	250.6	.800	5.68	4.54
32	77.40	2.3700	204.8	.800	5.08	4.06
33	78.03	1.7900	154.7	.850	4.93	4.19
34	74.94	2.0000	172.8	.850	5.88	5.00
35	73.79	1.8800	162.4	.850	5.84	4.96
36	72.60	1.9700	170.2	.850	6.73	5.72
37	67.46	1.5400	133.1	.800	6.85	5.48
38	61.06	1.2200	105.4	.800	7.05	5.64
39	59.49	1.1700	101.1	.800	6.93	5.54
40	53.24	.9100	78.6	.800	7.46	5.97
41	47.31	1.1700	101.1	.800	6.75	5.40
42	43.93	1.2600	108.9	.800	7.01	5.61
43	41.97	1.0000	86.4	.800	6.23	4.98
44	38.51	1.0200	88.1	.700	6.41	4.49
45	39.79	.7100	61.3	.700	5.40	3.78
46	44.08	.7900	68.3	.800	5.22	4.18
47	45.23	.8800	76.0	.800	4.56	3.65
48	45.53	1.0600	91.6	.800	4.59	3.67
49	44.22	.9700	83.8	.800	4.75	3.80
50	47.95	1.0800	93.3	.800	4.51	3.61
51	47.03	1.0400	89.9	.800	4.06	3.25
52	47.96	1.1900	102.8	.800	4.15	3.32

ANNEXURE 7.5

ETo RESULTS FOR DANTIWADA - HARGREAVES & JENSEN HAISE METHOD

WEEKS	MEAN TEMP °C	RS mm/day	ETo mm/day	
			HARG	JEN-HAI
1	18.30	7.02	4.10	4.14
2	18.90	6.99	4.15	4.21
3	18.20	7.15	4.17	4.20
4	18.80	7.17	4.25	4.30
5	18.70	7.47	4.41	4.47
6	18.40	7.74	4.54	4.58
7	20.60	7.98	4.96	5.10
8	21.80	8.10	5.19	5.39
9	23.00	8.25	5.45	5.70
10	24.40	9.34	6.38	6.74
11	25.90	9.48	6.71	7.15
12	26.30	9.29	6.63	7.09
13	27.40	9.37	6.86	7.38
14	28.60	10.29	7.73	8.37
15	30.00	10.45	8.09	8.82
16	30.60	10.49	8.22	8.99
17	31.50	10.67	8.52	9.36
18	31.50	10.69	8.53	9.37
19	32.80	10.60	8.69	9.59
20	33.00	10.67	8.78	9.70
21	33.30	10.91	9.03	9.99
22	33.10	10.51	8.66	9.58
23	33.50	10.71	8.90	9.86
24	33.00	9.88	8.13	8.99
25	32.30	8.86	7.19	7.92
26	31.50	8.60	6.87	7.54
27	31.00	8.23	6.50	7.13
28	30.20	8.43	6.55	7.15
29	29.30	7.83	5.97	6.49
30	29.30	6.49	4.95	5.38
31	28.80	6.73	5.08	5.50
32	28.20	6.86	5.11	5.52
33	28.50	6.28	4.71	5.10
34	28.50	6.34	4.75	5.14
35	28.60	6.65	5.00	5.41
36	28.60	8.06	6.06	6.56
37	28.70	8.32	6.26	6.79
38	29.50	8.92	6.83	7.43
39	29.40	8.69	6.64	7.22
40	29.50	8.06	6.17	6.72
41	28.90	8.02	6.06	6.58
42	27.80	8.42	6.22	6.70
43	27.10	8.14	5.92	6.36
44	26.30	7.33	5.23	5.60
45	25.10	6.95	4.83	5.12
46	24.60	6.99	4.80	5.08
47	23.10	7.02	4.65	4.87
48	21.70	6.68	4.27	4.43
49	20.60	6.47	4.02	4.14
50	19.90	6.27	3.83	3.91
51	19.70	6.32	3.84	3.92
52	18.90	6.49	3.86	3.91

ANNEXURE 7.5

ETo RESULTS FOR DANTIWADA - THORNTHWAITE METHOD

WEEK NO	T mean °C	UNADJUSTED ETo mm/month	CORRECTION FACTOR	ETo mm/day
1	18.35	31.98	0.9327	0.99
2	18.90	35.85	0.9327	1.11
3	18.20	30.98	0.9327	0.96
4	18.85	35.48	0.9327	1.10
5	18.70	34.40	0.9091	1.04
6	19.40	39.65	0.8914	1.18
7	20.65	50.47	0.8914	1.50
8	21.80	62.22	0.8914	1.85
9	23.10	77.82	0.9706	2.52
10	24.50	97.68	1.0300	3.35
11	25.95	121.97	1.0300	4.19
12	26.35	129.39	1.0300	4.44
13	27.50	152.61	1.0341	5.26
14	28.55	176.38	1.0586	6.22
15	30.00	213.58	1.0586	7.54
16	30.70	233.48	1.0586	8.24
17	31.50	257.87	1.0586	9.10
18	31.55	259.46	1.1346	9.81
19	32.90	305.04	1.1473	11.67
20	33.05	310.44	1.1473	11.87
21	33.30	319.61	1.1473	12.22
22	33.15	314.09	1.1424	11.96
23	33.50	327.09	1.1359	12.38
24	33.05	310.44	1.1359	11.75
25	32.40	287.52	1.1359	10.89
26	31.55	259.46	1.1402	9.86
27	31.10	245.45	1.1659	9.54
28	30.20	219.13	1.1659	8.52
29	29.35	196.25	1.1659	7.63
30	29.30	194.96	1.1659	7.58
31	28.90	184.88	1.1320	6.98
32	28.20	168.17	1.1186	6.27
33	28.55	176.38	1.1186	6.58
34	28.50	175.19	1.1186	6.53
35	28.65	178.78	1.0904	6.50
36	28.65	178.78	1.0200	6.08
37	28.75	181.20	1.0200	6.16
38	29.50	200.15	1.0200	6.81
39	29.45	198.84	1.0200	6.76
40	29.55	201.46	0.9914	6.66
41	28.95	186.12	0.9914	6.15
42	27.90	161.36	0.9914	5.33
43	27.15	145.24	0.9914	4.80
44	26.30	128.45	0.9464	4.05
45	25.15	108.07	0.9127	3.29
46	24.60	99.23	0.9127	3.02
47	23.20	79.13	0.9127	2.41
48	21.75	61.67	0.9131	1.88
49	20.65	50.47	0.9141	1.54
50	20.00	44.60	0.9141	1.36
51	19.70	42.07	0.9141	1.28
52	18.95	36.21	0.9141	1.10

ANNEXURE 7.6

ETo RESULTS FOR ANAND - PENMAN METHOD

WEEK NO	C	W	Rn	f(u)	(ea-ed)	ETo mm/day
1	1.02	.68	2.94	.549	10.44	3.90
2	1.01	.68	2.98	.533	10.38	3.86
3	1.01	.67	2.94	.530	10.87	3.90
4	1.00	.67	2.92	.527	11.45	3.96
5	1.02	.68	3.36	.517	11.66	4.31
6	1.03	.68	3.72	.514	12.88	4.78
7	1.03	.70	3.75	.501	13.76	4.83
8	1.02	.71	3.72	.539	15.26	5.10
9	1.03	.72	4.19	.535	16.50	5.64
10	1.03	.74	4.58	.528	18.52	6.12
11	1.02	.75	4.55	.547	19.83	6.25
12	1.04	.75	4.62	.565	19.33	6.41
13	1.02	.76	4.56	.579	21.72	6.58
14	1.00	.77	5.16	.596	23.03	7.14
15	1.01	.78	5.27	.591	24.35	7.35
16	1.02	.78	5.45	.623	23.67	7.61
17	1.02	.79	5.56	.632	24.32	7.71
18	1.01	.80	6.09	.656	24.46	8.21
19	1.01	.80	6.07	.701	23.75	8.23
20	1.00	.81	6.11	.737	25.10	8.50
21	1.01	.81	6.13	.782	24.21	8.57
22	1.00	.81	6.12	.811	22.95	8.46
23	.99	.81	5.83	.841	20.42	7.94
24	.99	.80	5.48	.833	17.63	7.20
25	.98	.80	5.23	.813	14.87	6.50
26	.98	.79	4.82	.766	12.45	5.70
27	1.08	.78	4.67	.703	10.23	5.67
28	1.08	.78	4.53	.727	10.73	5.70
29	1.09	.77	4.33	.704	7.92	5.02
30	1.09	.78	4.39	.723	7.71	5.07
31	1.09	.77	4.08	.685	7.42	4.71
32	1.01	.77	3.81	.675	6.32	3.96
33	1.05	.77	4.11	.657	6.82	4.39
34	1.09	.77	4.06	.641	6.89	4.54
35	1.08	.77	4.50	.653	8.19	5.10
36	1.08	.77	4.47	.656	10.22	5.39
37	1.09	.77	4.69	.617	10.27	5.50
38	1.08	.77	5.03	.598	11.21	5.86
39	1.08	.78	5.00	.548	12.15	5.83
40	1.06	.78	4.53	.518	15.05	5.59
41	1.05	.77	4.36	.511	15.78	5.49
42	1.05	.77	4.34	.498	17.39	5.61
43	1.04	.76	4.23	.501	17.53	5.54
44	1.03	.75	3.80	.493	16.88	5.07
45	1.00	.74	3.24	.521	16.78	4.69
46	1.01	.73	3.28	.494	15.16	4.47
47	1.00	.72	3.10	.521	14.88	4.39
48	1.00	.72	2.90	.554	13.76	4.25
49	1.00	.71	2.64	.541	13.63	4.01
50	1.01	.69	2.67	.523	11.73	3.74
51	1.00	.69	2.66	.529	11.96	3.78
52	1.00	.68	2.68	.513	11.05	3.65

ANNEXURE 7.6

ETo RESULTS FOR ANAND - BLANEY - CRIDDLE METHOD

WEEK NO.	CONSTANT a	RH MIN %	CONSTANT b	T MEAN °C	P CONSTANT	ETo mm/day
1	-2.0573	37.30	1.361	19.51	.245	3.60
2	-2.0772	38.89	1.359	19.37	.245	3.55
3	-2.1190	35.19	1.406	18.92	.245	3.63
4	-2.1291	33.48	1.421	19.19	.245	3.73
5	-2.1481	32.47	1.435	19.52	.252	4.00
6	-2.1706	26.96	1.480	19.92	.260	4.44
7	-2.1539	28.21	1.456	21.29	.260	4.58
8	-2.1697	26.35	1.493	22.13	.260	4.89
9	-2.1645	23.39	1.505	23.11	.260	5.13
10	-2.1441	21.53	1.498	24.61	.265	5.52
11	-2.1142	24.03	1.472	25.73	.270	5.77
12	-2.1189	22.93	1.489	26.01	.270	5.91
13	-2.1088	21.98	1.493	27.33	.270	6.18
14	-2.0940	20.71	1.496	28.25	.270	6.39
15	-2.1036	21.04	1.500	29.51	.285	7.12
16	-2.1142	22.99	1.512	30.01	.285	7.29
17	-2.0943	27.24	1.476	31.19	.285	7.31
18	-2.1063	27.24	1.494	31.72	.285	7.52
19	-2.0576	30.81	1.454	32.24	.295	7.74
20	-2.0659	29.77	1.480	33.02	.295	8.06
21	-2.0463	30.80	1.475	33.24	.295	8.09
22	-1.9961	35.91	1.411	33.21	.295	7.70
23	-1.8847	41.64	1.302	32.71	.300	7.12
24	-1.7660	47.39	1.187	32.18	.305	6.49
25	-1.6717	54.33	1.086	31.47	.305	5.77
26	-1.5656	58.18	.992	30.44	.305	5.10
27	-1.5093	63.11	.915	29.70	.305	4.54
28	-1.5039	59.48	.939	29.19	.305	4.64
29	-1.4055	69.83	.805	28.73	.305	3.81
30	-1.3975	72.56	.784	29.51	.305	3.76
31	-1.3594	71.42	.765	28.38	.305	3.55
32	-1.3092	75.16	.711	27.93	.290	2.99
33	-1.3872	73.07	.767	27.83	.290	3.24
34	-1.3804	72.31	.767	27.86	.290	3.25
35	-1.5310	65.98	.900	27.97	.290	3.91
36	-1.6641	57.18	1.034	28.07	.290	4.61
37	-1.7154	57.55	1.055	28.30	.280	4.49
38	-1.8083	56.35	1.112	28.78	.280	4.81
39	-1.8276	52.44	1.133	28.90	.280	4.93
40	-2.0040	42.74	1.287	28.83	.280	5.66
41	-1.9885	38.56	1.297	28.56	.260	5.14
42	-2.0757	32.05	1.384	27.69	.260	5.39
43	-2.0945	30.09	1.407	26.58	.260	5.31
44	-2.1095	30.56	1.412	25.89	.260	5.20
45	-2.1389	29.88	1.446	24.90	.255	5.03
46	-2.1305	31.00	1.423	24.08	.250	4.65
47	-2.0683	29.45	1.401	23.25	.250	4.48
48	-2.0779	31.86	1.407	22.42	.247	4.30
49	-2.0871	29.52	1.421	21.73	.245	4.17
50	-2.0314	35.77	1.343	20.89	.245	3.76
51	-2.0524	35.00	1.364	20.69	.245	3.80
52	-2.0643	36.99	1.356	19.77	.245	3.61

ANNEXURE 7.6

ETo RESULTS FOR ANAND - RADIATION METHOD

WEEK NO	C mm/day	W	Ra mm/day	Rs mm/day	N HOURS	ETo mm/day
1	.9483	.6767	10.555	6.90	10.845	4.13
2	.9467	.6752	10.555	7.04	10.845	4.20
3	.9639	.6705	10.555	7.18	10.845	4.34
4	.9715	.6733	10.555	7.19	10.845	4.41
5	.9694	.6768	11.355	7.82	11.097	4.83
6	.9856	.6810	12.184	8.39	11.397	5.33
7	.9795	.7006	12.184	8.32	11.397	5.41
8	.9983	.7122	12.184	8.36	11.397	5.65
9	1.0023	.7220	13.184	8.93	11.648	6.16
10	1.0081	.7370	14.113	9.36	12.000	6.66
11	1.0126	.7482	14.113	9.23	12.000	6.69
12	1.0052	.7510	14.113	9.23	12.000	6.67
13	1.0182	.7642	14.113	9.13	12.000	6.80
14	1.0233	.7722	15.471	9.85	12.652	7.48
15	1.0192	.7785	15.471	9.93	12.652	7.58
16	1.0099	.7810	15.471	10.08	12.652	7.65
17	1.0020	.7928	15.471	10.07	12.652	7.70
18	.9999	.7981	16.329	10.72	13.203	8.26
19	.9922	.8032	16.329	10.45	13.203	8.03
20	1.0005	.8106	16.329	10.48	13.203	8.20
21	.9949	.8127	16.329	10.36	13.203	8.08
22	.9865	.8125	16.429	10.19	13.355	7.87
23	.9706	.8077	16.458	9.49	13.506	7.14
24	.9419	.8026	16.458	8.72	13.506	6.29
25	.9091	.7956	16.458	8.19	13.506	5.62
26	.8798	.7853	16.458	7.45	13.506	4.85
27	.8446	.7794	16.429	7.15	13.355	4.41
28	.8605	.7769	16.429	6.98	13.355	4.37
29	.8126	.7746	16.429	6.54	13.355	3.81
30	.8047	.7785	16.429	6.57	13.355	3.81
31	.8044	.7728	16.229	6.14	13.255	3.52
32	.7868	.7702	15.800	5.71	12.903	3.16
33	.7949	.7692	15.800	6.25	12.903	3.52
34	.7947	.7695	15.800	6.17	12.903	3.47
35	.8185	.7706	15.571	7.04	12.552	4.14
36	.8547	.7713	14.571	7.29	12.300	4.50
37	.8485	.7713	14.571	7.67	12.300	4.72
38	.8572	.7724	14.571	8.31	12.300	5.20
39	.8640	.7748	14.571	8.33	12.300	5.28
40	.9051	.7751	12.884	8.23	11.648	5.47
41	.9181	.7737	12.884	8.02	11.648	5.39
42	.9483	.7678	12.884	8.40	11.648	5.81
43	.9651	.7567	12.884	8.46	11.648	5.88
44	.9645	.7468	11.984	7.97	11.397	5.44
45	.9796	.7399	10.984	7.45	11.045	5.10
46	.9639	.7317	10.984	7.43	11.045	4.94
47	.9744	.7234	10.984	7.06	11.045	4.67
48	.9728	.7151	10.484	6.84	10.945	4.46
49	.9778	.6997	10.055	6.56	10.745	4.19
50	.9521	.6948	10.055	6.41	10.745	3.94
51	.9605	.6918	10.055	6.50	10.745	4.02
52	.9528	.6794	10.055	6.60	10.745	3.97

ANNEXURE 7.6

ETo RESULTS FOR ANAND - PAN EVAPORATION METHOD

WEEK NO	RH MEAN %	WIND m/sec	WIND Km/day	CONSTANT KP	EVAPO. mm/day	ETo mm/day
1	54.08	1.2900	111.5	.800	3.29	2.63
2	53.93	1.2100	104.5	.800	3.30	2.64
3	50.41	1.2000	103.7	.800	3.33	2.66
4	48.63	1.1900	102.8	.800	3.52	2.82
5	48.74	1.1400	98.5	.800	3.84	3.07
6	44.74	1.1300	97.6	.800	3.96	3.17
7	45.65	1.0600	91.6	.800	4.39	3.51
8	42.67	1.2400	107.1	.800	5.02	4.02
9	41.54	1.2200	105.4	.800	5.69	4.55
10	39.88	1.1900	102.8	.700	5.57	3.90
11	39.65	1.2800	110.6	.700	6.48	4.54
12	42.10	1.3600	117.5	.800	6.53	5.22
13	39.64	1.4200	122.7	.700	6.93	4.85
14	39.18	1.5000	129.6	.700	7.65	5.36
15	40.01	1.4800	127.9	.800	8.33	6.66
16	43.29	1.6300	140.8	.800	8.23	6.58
17	45.31	1.6700	144.3	.800	8.39	6.71
18	46.55	1.7800	153.8	.800	8.58	6.86
19	49.50	1.9900	171.9	.800	8.59	6.87
20	48.79	2.1500	185.8	.750	9.10	6.83
21	51.18	2.3600	203.9	.750	9.01	6.76
22	53.64	2.4900	215.1	.750	9.23	6.92
23	57.65	2.6300	227.2	.750	8.84	6.63
24	62.40	2.5900	223.8	.750	7.94	5.95
25	67.06	2.5000	216.0	.750	7.38	5.53
26	70.85	2.2900	197.9	.800	6.58	5.26
27	75.06	2.0000	172.8	.850	5.29	4.50
28	73.10	2.1100	182.3	.800	4.87	3.90
29	79.63	2.0000	172.8	.850	4.34	3.69
30	81.01	2.0900	180.6	.800	3.72	2.98
31	80.54	1.9100	165.0	.850	4.14	3.52
32	83.01	1.8700	161.6	.850	3.36	2.86
33	81.57	1.7800	153.8	.850	3.80	3.23
34	81.42	1.7100	147.7	.850	3.36	2.86
35	78.03	1.7600	152.1	.850	3.88	3.30
36	72.76	1.7800	153.8	.850	4.48	3.81
37	72.95	1.6000	138.2	.850	4.77	4.05
38	71.24	1.5100	130.5	.850	4.81	4.09
39	69.06	1.2800	110.6	.800	4.56	3.65
40	61.52	1.1400	98.5	.800	4.92	3.94
41	59.04	1.1100	95.9	.800	4.77	3.82
42	52.64	1.0500	90.7	.800	5.22	4.18
43	49.18	1.0600	91.6	.800	4.79	3.83
44	49.10	1.0300	89.0	.800	4.52	3.62
45	46.44	1.1600	100.2	.800	4.44	3.55
46	49.24	1.0300	89.0	.800	3.87	3.10
47	47.69	1.1600	100.2	.800	3.82	3.06
48	49.19	1.3100	113.2	.800	3.86	3.09
49	47.58	1.2500	108.0	.800	3.78	3.02
50	52.54	1.1600	100.2	.800	3.18	2.54
51	51.03	1.1900	102.8	.800	3.15	2.52
52	52.15	1.1200	96.8	.800	3.11	2.49

ANNEXURE 7.6

ETo RESULTS FOR ANAND - HARGREAVES & JENSEN HAISE METHOD

WEEKS	MEAN TEMP °C	RS mm/day	ETo mm/day	
			HARG	JEN-HAI
1	19.51	6.90	4.17	4.14
2	19.37	7.04	4.24	4.20
3	18.92	7.18	4.27	4.22
4	19.19	7.19	4.31	4.27
5	19.52	7.82	4.73	4.69
6	19.92	8.39	5.12	5.11
7	21.29	8.32	5.27	5.31
8	22.13	8.36	5.41	5.49
9	23.11	8.93	5.92	6.05
10	24.61	9.36	6.43	6.64
11	25.73	9.23	6.51	6.77
12	26.01	9.23	6.55	6.82
13	27.33	9.13	6.67	7.01
14	28.26	9.85	7.35	7.75
15	29.51	9.93	7.61	8.08
16	30.01	10.08	7.80	8.31
17	31.19	10.07	7.99	8.56
18	31.72	10.72	8.60	9.23
19	32.24	10.45	8.47	9.12
20	33.02	10.48	8.62	9.32
21	33.24	10.36	8.56	9.26
22	33.21	10.19	8.42	9.10
23	32.71	9.49	7.76	8.38
24	32.18	8.72	7.06	7.60
25	31.47	8.19	6.53	7.01
26	30.44	7.45	5.82	6.21
27	29.70	7.15	5.50	5.85
28	29.19	6.98	5.31	5.63
29	28.73	6.54	4.93	5.21
30	29.51	6.57	5.03	5.35
31	28.38	6.14	4.59	4.85
32	27.93	5.71	4.23	4.46
33	27.83	6.25	4.62	4.86
34	27.86	6.17	4.56	4.80
35	27.97	7.04	5.22	5.50
36	28.07	7.29	5.41	5.71
37	28.07	7.67	5.70	6.01
38	28.30	8.31	6.20	6.55
39	28.78	8.33	6.28	6.65
40	28.83	8.23	6.21	6.58
41	28.56	8.02	6.02	6.37
42	27.69	8.40	6.19	6.51
43	26.58	8.46	6.08	6.36
44	25.59	7.97	5.60	5.82
45	24.90	7.45	5.15	5.33
46	24.08	7.43	5.04	5.19
47	23.25	7.06	4.69	4.80
48	22.42	6.84	4.45	4.53
49	21.23	6.56	4.15	4.18
50	20.89	6.41	4.02	4.04
51	20.69	6.50	4.05	4.06
52	19.77	6.60	4.01	4.00

ANNEXURE 7.6

ETo RESULTS FOR ANAND - THORNTHWAITE METHOD

WEEK NO	T mean °C	UNADJUSTED ETo mm/month	CORRECTION FACTOR	ETo mm/day
1	19.51	41.54	0.9397	1.30
2	19.37	40.43	0.9397	1.27
3	18.92	36.98	0.9397	1.16
4	19.19	39.02	0.9397	1.22
5	19.52	41.63	0.9140	1.27
6	19.92	44.96	0.8948	1.34
7	21.29	57.86	0.8948	1.73
8	22.13	67.01	0.8948	2.00
9	23.11	78.98	0.9721	2.56
10	24.61	100.26	1.0300	3.44
11	25.73	118.69	1.0300	4.08
12	26.01	123.67	1.0300	4.25
13	27.33	149.22	1.0336	5.14
14	28.26	169.41	1.0552	5.96
15	29.51	199.64	1.0552	7.02
16	30.01	212.78	1.0552	7.48
17	31.19	246.30	1.0552	8.66
18	31.72	262.56	1.1281	9.87
19	32.24	279.27	1.1403	10.61
20	33.02	305.78	1.1403	11.62
21	33.24	313.58	1.1403	11.92
22	33.21	312.50	1.1340	11.81
23	32.71	295.03	1.1255	11.07
24	32.18	277.30	1.1255	10.40
25	31.47	254.80	1.1255	9.56
26	30.44	224.58	1.1298	8.46
27	29.70	204.56	1.1555	7.88
28	29.19	191.55	1.1555	7.38
29	28.73	180.35	1.1555	6.95
30	29.51	199.64	1.1555	7.69
31	28.38	172.16	1.1267	6.47
32	27.93	162.03	1.1152	6.02
33	27.83	159.84	1.1152	5.94
34	27.86	160.49	1.1152	5.97
35	27.97	162.91	1.0880	5.91
36	28.07	165.13	1.0200	5.61
37	28.30	170.32	1.0200	5.79
38	28.78	181.55	1.0200	6.17
39	28.90	184.43	1.0200	6.27
40	28.83	182.74	0.9948	6.06
41	28.56	176.34	0.9948	5.85
42	27.69	156.81	0.9948	5.20
43	26.58	134.27	0.9948	4.45
44	25.89	121.52	0.9519	3.86
45	24.90	104.81	0.9197	3.21
46	24.08	92.31	0.9197	2.83
47	23.25	80.81	0.9197	2.48
48	22.42	70.40	0.9211	2.16
49	21.73	62.53	0.9245	1.93
50	20.89	53.84	0.9245	1.66
51	20.69	51.91	0.9245	1.60
52	19.77	43.68	0.9245	1.35

ANNEXURE 7.7

ETo RESULTS FOR VADODARA - PENMAN METHOD

WEEK NO	C	W	Rn	f(u)	(ea-ed)	ETo mm/day
1	1.00	.70	3.11	.668	11.02	4.39
2	1.01	.69	3.19	.680	10.54	4.45
3	1.00	.69	3.07	.638	12.24	4.55
4	.99	.69	3.12	.692	12.32	4.73
5	1.00	.69	3.50	.680	12.19	4.99
6	1.01	.70	3.85	.656	12.40	5.14
7	1.02	.71	3.88	.656	12.75	5.26
8	1.00	.73	3.90	.740	14.77	5.86
9	1.01	.74	4.34	.692	15.69	6.11
10	1.03	.75	4.94	.686	15.83	6.65
11	1.02	.75	4.96	.680	17.95	6.94
12	1.02	.76	4.82	.704	19.84	7.10
13	1.02	.77	4.43	.728	25.47	7.76
14	.98	.78	5.49	.740	21.77	7.70
15	.99	.78	5.60	.692	22.62	7.73
16	1.00	.79	5.72	.716	21.75	7.81
17	1.01	.80	5.90	.770	22.08	8.19
18	.99	.80	6.03	.806	23.63	8.49
19	.98	.81	6.18	.897	23.95	8.86
20	.98	.82	6.38	.957	23.30	9.13
21	.99	.81	6.44	.885	23.48	8.98
22	.97	.81	5.84	.963	21.34	8.32
23	.98	.81	6.19	.999	19.67	8.57
24	.97	.80	5.68	.957	17.17	7.58
25	.96	.80	5.42	.957	15.47	7.03
26	.95	.78	5.07	.951	12.95	6.30
27	1.06	.78	4.55	.903	10.05	5.89
28	1.07	.78	4.60	.861	10.46	5.96
29	1.07	.78	4.16	.855	8.62	5.23
30	1.07	.78	4.18	.861	7.70	5.07
31	.98	.77	3.90	.800	8.16	4.42
32	.99	.77	3.75	.758	7.46	4.15
33	1.08	.77	4.16	.722	7.29	4.78
34	1.09	.77	4.06	.716	6.72	4.61
35	1.07	.77	4.05	.746	7.67	4.73
36	1.07	.77	4.45	.764	8.70	5.29
37	1.07	.77	4.59	.638	10.16	5.36
38	1.07	.78	4.93	.626	10.88	5.72
39	1.07	.78	5.08	.601	11.34	5.85
40	1.05	.78	4.71	.601	13.46	5.73
41	1.04	.78	4.60	.614	13.82	5.71
42	1.03	.78	4.57	.620	16.91	6.08
43	1.02	.77	4.38	.571	17.14	5.72
44	1.01	.76	3.92	.589	16.49	5.36
45	.99	.75	3.51	.620	15.31	4.98
46	.99	.74	3.38	.541	14.99	4.56
47	.99	.74	3.34	.638	13.46	4.69
48	1.00	.73	3.17	.638	12.13	4.43
49	.99	.72	2.92	.595	12.41	4.15
50	1.00	.71	2.88	.595	11.81	4.06
51	.99	.71	2.88	.601	12.08	4.11
52	1.00	.70	2.87	.644	10.85	4.08

ANNEXURE 7.7

ETo RESULTS FOR VADODARA - BLANEY - CRIDDLE METHOD

WEEK NO.	CONSTANT a	RH MIN %	CONSTANT b	T MEAN °C	P CONSTANT	ETo mm/day
1	-2.0448	44.80	1.343	20.95	.246	3.78
2	-2.0767	43.80	1.373	20.90	.246	3.87
3	-2.1381	33.80	1.465	20.75	.246	4.18
4	-2.1489	37.70	1.464	20.90	.246	4.19
5	-2.1122	39.60	1.423	20.90	.253	4.23
6	-2.0505	42.50	1.358	21.55	.260	4.27
7	-2.0570	41.00	1.372	22.20	.260	4.44
8	-2.0970	37.80	1.446	23.45	.260	4.97
9	-2.0554	39.40	1.392	24.45	.260	4.91
10	-2.0705	40.20	1.394	25.45	.265	5.21
11	-2.1379	34.20	1.478	26.00	.270	5.83
12	-2.0974	32.00	1.475	27.30	.270	6.09
13	-2.1673	8.00	1.698	28.40	.270	7.49
14	-2.0542	36.00	1.431	29.30	.270	6.24
15	-2.0700	36.00	1.425	30.20	.284	6.79
16	-2.0479	39.30	1.395	30.85	.284	6.75
17	-2.0672	38.50	1.431	31.90	.284	7.15
18	-2.0303	35.70	1.437	32.20	.284	7.28
19	-2.0271	38.20	1.445	33.20	.294	7.86
20	-2.0451	39.30	1.468	33.65	.294	8.09
21	-2.0636	40.30	1.450	33.45	.294	7.91
22	-1.8830	43.60	1.322	33.15	.294	7.15
23	-1.9405	45.90	1.360	32.80	.299	7.45
24	-1.7906	51.40	1.211	32.35	.304	6.64
25	-1.7127	55.70	1.136	31.65	.304	6.08
26	-1.6191	60.20	1.051	30.30	.304	5.40
27	-1.4581	69.10	.868	29.70	.304	4.26
28	-1.4886	65.50	.909	29.55	.304	4.48
29	-1.3674	71.00	.792	28.90	.304	3.76
30	-1.3468	75.80	.745	28.90	.304	3.47
31	-1.3163	72.80	.743	28.75	.304	3.48
32	-1.3018	73.90	.723	28.35	.290	3.11
33	-1.3881	75.50	.758	28.20	.290	3.22
34	-1.3665	75.10	.748	27.85	.290	3.15
35	-1.3967	71.70	.792	27.95	.290	3.39
36	-1.5947	68.60	.936	27.95	.290	4.07
37	-1.6521	64.70	.978	28.50	.280	4.13
38	-1.7377	63.70	1.033	29.10	.280	4.45
39	-1.7707	63.60	1.048	29.60	.280	4.57
40	-1.9300	56.60	1.183	29.60	.280	5.23
41	-1.9317	54.20	1.202	28.95	.260	4.73
42	-2.0167	46.40	1.302	28.95	.260	5.20
43	-2.0013	46.00	1.282	27.80	.260	4.93
44	-2.0287	43.50	1.319	26.85	.260	4.95
45	-2.0724	45.40	1.341	25.80	.255	4.72
46	-2.0195	45.10	1.290	25.40	.250	4.33
47	-1.9877	46.20	1.290	24.45	.250	4.22
48	-2.0152	47.80	1.298	23.50	.248	4.04
49	-2.0423	45.00	1.319	22.80	.246	3.96
50	-2.0361	44.30	1.320	22.00	.246	3.85
51	-2.0365	44.20	1.323	22.25	.246	3.90
52	-2.0089	46.30	1.305	21.45	.246	3.73

ANNEXURE 7.7

ETo RESULTS FOR VADODARA - RADIATION METHOD

WEEK NO	C mm/day	W	Ra mm/day	Rs mm/day	N HOURS	ETo mm/day
1	.9569	.6952	10.688	7.09	10.877	4.42
2	.9497	.6944	10.688	7.24	10.877	4.48
3	.9804	.6922	10.688	7.34	10.877	4.68
4	.9872	.6944	10.688	7.49	10.877	4.83
5	.9832	.6944	11.488	7.88	11.118	5.08
6	.9744	.7040	12.290	8.13	11.418	5.28
7	.9719	.7126	12.290	8.13	11.418	5.33
8	1.0016	.7251	12.290	8.29	11.418	5.72
9	.9951	.7351	13.290	8.74	11.659	6.09
10	.9823	.7451	14.193	9.46	12.000	6.63
11	1.0053	.7506	14.193	9.76	12.000	7.06
12	1.0163	.7636	14.193	9.40	12.000	7.00
13	1.0701	.7726	14.193	9.17	12.000	7.28
14	1.0164	.7771	15.498	10.07	12.641	7.65
15	1.0062	.7826	15.498	10.19	12.641	7.72
16	.9908	.7891	15.498	10.13	12.641	7.62
17	.9883	.7996	15.498	10.25	12.641	7.80
18	1.0058	.8025	16.302	10.38	13.182	8.08
19	1.0087	.8122	16.302	10.44	13.182	8.26
20	1.0044	.8166	16.302	10.63	13.182	8.42
21	.9991	.8147	16.302	10.82	13.182	8.50
22	.9907	.8118	16.403	9.52	13.323	7.35
23	.9804	.8084	16.405	10.07	13.464	7.68
24	.9475	.8040	16.405	9.04	13.464	6.58
25	.9311	.7971	16.405	8.55	13.464	6.04
26	.9067	.7836	16.405	7.94	13.464	5.34
27	.8599	.7798	16.403	6.93	13.323	4.35
28	.8643	.7783	16.403	7.06	13.323	4.45
29	.8374	.7751	16.403	6.26	13.323	3.76
30	.8216	.7751	16.403	6.26	13.323	3.68
31	.8254	.7743	16.203	5.83	13.223	3.42
32	.8122	.7723	15.800	5.61	12.882	3.22
33	.8067	.7716	15.800	6.34	12.882	3.65
34	.7983	.7691	15.800	6.16	12.882	3.48
35	.8180	.7701	15.598	6.20	12.541	3.61
36	.8390	.7701	14.598	7.15	12.300	4.32
37	.8470	.7731	14.598	7.45	12.300	4.58
38	.8519	.7761	14.598	8.04	12.300	5.02
39	.8515	.7786	14.598	8.28	12.300	5.19
40	.8839	.7786	12.990	8.21	11.659	5.35
41	.8980	.7753	12.990	8.15	11.659	5.37
42	.9431	.7753	12.990	8.48	11.659	5.90
43	.9537	.7686	12.990	8.37	11.659	5.84
44	.9596	.7591	12.090	7.89	11.418	5.45
45	.9603	.7486	11.090	7.53	11.077	5.11
46	.9500	.7446	11.090	7.23	11.077	4.81
47	.9512	.7351	11.090	7.08	11.077	4.65
48	.9407	.7256	10.590	6.94	10.977	4.44
49	.9490	.7186	10.188	6.75	10.777	4.31
50	.9485	.7106	10.188	6.71	10.777	4.22
51	.9512	.7131	10.188	6.71	10.777	4.25
52	.9438	.7025	10.188	6.61	10.777	4.08

ANNEXURE 7.7

ETo RESULTS FOR VADODARA - PAN EVAPORATION METHOD

WEEK NO	RH MEAN %	WIND m/sec	WIND Km/day	CONSTANT KP	EVAPO. mm/day	ETo mm/day
1	55.60	1.8300	158.1	.850	4.26	3.62
2	57.40	1.8900	163.3	.850	4.26	3.62
3	50.05	1.6900	146.0	.850	4.56	3.88
4	50.20	1.9400	167.6	.850	4.77	4.05
5	50.70	1.8900	163.3	.850	4.75	4.04
6	51.80	1.7800	153.8	.850	5.14	4.37
7	52.30	1.7800	153.8	.850	5.23	4.45
8	48.70	2.1700	187.5	.800	5.57	4.46
9	48.60	1.9400	167.6	.850	6.45	5.48
10	51.05	1.9200	165.9	.850	7.07	6.01
11	46.20	1.8900	163.3	.850	7.46	6.34
12	44.75	2.0000	172.8	.850	7.46	6.34
13	33.30	2.1100	182.3	.700	7.64	5.35
14	45.75	2.1700	187.5	.800	8.03	6.42
15	46.35	1.9400	167.6	.850	8.65	7.35
16	50.20	2.0600	178.0	.800	9.13	7.30
17	52.20	2.3100	199.6	.800	9.18	7.34
18	49.65	2.4700	213.4	.800	9.39	7.51
19	51.60	2.8900	249.7	.800	9.87	7.90
20	54.00	3.1700	273.9	.800	10.45	8.36
21	53.15	2.8300	244.5	.800	10.53	8.42
22	56.75	3.1900	275.6	.800	10.15	8.12
23	59.40	3.3600	290.3	.800	9.58	7.66
24	63.70	3.1700	273.9	.800	8.10	6.48
25	66.05	3.1700	273.9	.800	7.22	5.78
26	69.45	3.1400	271.3	.800	5.87	4.70
27	75.50	2.9200	252.3	.800	5.31	4.25
28	74.30	2.7200	235.0	.800	5.30	4.24
29	78.05	2.6900	232.4	.800	5.35	4.28
30	80.40	2.7200	235.0	.800	5.04	4.03
31	79.05	2.4400	210.8	.800	4.45	3.56
32	80.40	2.2500	194.4	.800	4.47	3.58
33	80.70	2.0800	179.7	.800	4.53	3.62
34	81.85	2.0600	178.0	.800	4.47	3.58
35	79.40	2.1900	189.2	.800	3.98	3.18
36	76.65	2.2800	197.0	.800	4.44	3.55
37	73.55	1.6900	146.0	.850	4.85	4.12
38	72.60	1.6400	141.7	.850	5.53	4.70
39	72.20	1.5300	132.2	.850	5.57	4.73
40	67.00	1.5300	132.2	.850	5.86	4.98
41	64.90	1.5800	136.5	.850	5.62	4.78
42	57.05	1.6100	139.1	.850	5.44	4.62
43	53.60	1.3900	120.1	.850	5.25	4.46
44	52.90	1.4700	127.0	.850	5.36	4.56
45	53.60	1.6100	139.1	.850	4.74	4.03
46	53.50	1.2500	108.0	.850	4.39	3.73
47	55.90	1.6900	146.0	.850	4.19	3.56
48	58.00	1.6900	146.0	.850	4.38	3.72
49	55.20	1.5000	129.6	.850	4.23	3.60
50	55.30	1.5000	129.6	.850	4.00	3.40
51	54.95	1.5300	132.2	.850	4.09	3.48
52	57.55	1.7200	148.6	.850	4.04	3.43

ANNEXURE 7.7

ETo RESULTS FOR VADODARA - HARGREAVES & JENSEN HAISE METHOD

WEEKS	MEAN TEMP °C	RS mm/day	ETo mm/day	
			HARG	JEN-HAI
1	20.95	7.09	4.45	4.35
2	20.90	7.24	4.54	4.44
3	20.75	7.34	4.58	4.48
4	20.90	7.49	4.69	4.59
5	20.90	7.88	4.94	4.83
6	21.55	8.13	5.18	5.09
7	22.20	8.13	5.27	5.21
8	23.45	8.29	5.54	5.53
9	24.45	8.74	5.98	6.01
10	25.45	9.46	6.63	6.71
11	26.00	9.76	6.92	7.03
12	27.30	9.40	6.86	7.03
13	28.40	9.17	6.86	7.07
14	29.30	10.07	7.68	7.96
15	30.20	10.19	7.92	8.25
16	30.85	10.13	7.98	8.34
17	31.90	10.25	8.25	8.66
18	32.20	10.38	8.40	8.84
19	33.20	10.44	8.62	9.11
20	33.65	10.63	8.86	9.38
21	33.45	10.82	8.98	9.50
22	33.15	9.52	7.85	8.30
23	32.80	10.07	8.25	8.70
24	32.35	9.04	7.34	7.73
25	31.65	8.55	6.85	7.18
26	30.30	7.94	6.18	6.44
27	29.85	6.93	5.35	5.56
28	29.55	7.06	5.41	5.62
29	28.90	6.26	4.73	4.89
30	28.90	6.26	4.73	4.89
31	28.75	5.83	4.39	4.54
32	28.35	5.61	4.19	4.32
33	28.20	6.34	4.72	4.86
34	27.85	6.16	4.55	4.68
35	27.95	6.20	4.59	4.72
36	27.95	7.15	5.30	5.45
37	28.50	7.45	5.59	5.76
38	29.10	8.04	6.11	6.32
39	29.60	8.28	6.36	6.60
40	29.60	8.21	6.30	6.54
41	28.95	8.15	6.17	6.38
42	28.95	8.48	6.42	6.64
43	27.80	8.37	6.18	6.35
44	26.85	7.89	5.70	5.83
45	25.80	7.53	5.32	5.39
46	25.40	7.23	5.06	5.12
47	24.45	7.08	4.84	4.87
48	23.50	6.94	4.64	4.63
49	22.80	6.75	4.44	4.41
50	22.00	6.71	4.32	4.27
51	22.25	6.71	4.35	4.30
52	21.45	6.61	4.20	4.13

ANNEXURE 7.7

ETo RESULTS FOR VADODARA - THORNTHWAITE METHOD

WEEK NO	T mean °C	UNADJUSTED ETo mm/month	CORRECTION FACTOR	ETo mm/day
1	20.95	50.47	0.9418	1.58
2	20.90	49.98	0.9418	1.57
3	20.75	48.54	0.9418	1.52
4	20.90	49.98	0.9418	1.57
5	20.90	49.98	0.9156	1.53
6	21.55	56.58	0.8959	1.69
7	22.20	63.82	0.8959	1.91
8	23.45	79.68	0.8959	2.38
9	24.45	94.38	0.9725	3.06
10	25.45	111.02	1.0300	3.81
11	26.00	121.07	1.0300	4.16
12	27.30	147.53	1.0300	5.07
13	28.40	173.14	1.0394	6.00
14	29.30	196.47	1.0541	6.90
15	30.20	222.09	1.0541	7.80
16	30.85	242.11	1.0541	8.51
17	31.90	277.27	1.0541	9.74
18	32.20	287.99	1.1262	10.81
19	33.20	325.98	1.1382	12.37
20	33.65	344.26	1.1382	13.06
21	33.45	336.04	1.1382	12.75
22	33.15	324.00	1.1314	12.22
23	32.80	310.36	1.1223	11.61
24	32.35	293.46	1.1223	10.98
25	31.65	268.57	1.1223	10.05
26	30.30	225.09	1.1266	8.45
27	29.85	211.85	1.1523	8.14
28	29.55	203.35	1.1523	7.81
29	28.90	185.83	1.1523	7.14
30	28.90	185.83	1.1523	7.14
31	28.75	181.95	1.1250	6.82
32	28.35	171.91	1.1141	6.38
33	28.20	168.25	1.1141	6.25
34	27.85	159.95	1.1141	5.94
35	27.95	162.29	1.0872	5.88
36	27.95	162.29	1.0200	5.52
37	28.50	175.62	1.0200	5.97
38	29.10	191.09	1.0200	6.50
39	29.60	204.75	1.0200	6.96
40	29.60	204.75	0.9959	6.80
41	28.95	187.13	0.9959	6.21
42	28.95	187.13	0.9959	6.21
43	27.80	158.79	0.9959	5.27
44	26.85	137.92	0.9536	4.38
45	25.80	117.34	0.9218	3.61
46	25.40	110.14	0.9218	3.38
47	24.45	94.38	0.9218	2.90
48	23.50	80.38	0.9235	2.47
49	22.80	71.11	0.9277	2.20
50	22.00	61.53	0.9277	1.90
51	22.25	64.41	0.9277	1.99
52	21.45	55.53	0.9277	1.72

ANNEXURE 7.8

ETo RESULTS FOR RAJKOT - PENMAN METHOD

WEEK NO	C	W	Rn	f(u)	(ea-ed)	ETo mm/day
1	1.00	.68	3.25	.798	8.44	4.36
2	1.00	.67	3.29	.840	7.95	4.41
3	1.02	.68	3.33	.756	8.16	4.31
4	1.00	.68	3.27	.773	9.37	4.53
5	1.02	.69	3.62	.786	10.01	5.02
6	1.04	.70	4.05	.802	9.90	5.44
7	1.05	.70	4.09	.806	9.07	5.28
8	1.04	.71	4.19	.843	10.29	5.72
9	1.04	.73	4.59	.846	12.16	6.41
10	1.05	.74	4.98	.877	12.91	6.97
11	1.05	.76	4.97	.880	13.96	7.10
12	1.07	.75	5.17	.918	12.65	7.26
13	1.06	.76	5.11	.882	13.82	7.21
14	1.01	.78	5.67	.937	14.89	7.63
15	1.02	.78	5.81	.986	16.75	8.29
16	1.01	.79	5.89	1.012	19.15	8.80
17	1.00	.80	5.80	1.132	19.67	9.13
18	.98	.80	6.28	1.185	18.84	9.26
19	.96	.81	6.46	1.333	20.06	9.97
20	.97	.81	6.55	1.316	20.99	10.21
21	.97	.81	6.56	1.394	19.51	10.15
22	.97	.81	6.46	1.335	18.12	9.59
23	.97	.81	6.24	1.301	18.14	9.22
24	.95	.81	5.67	1.308	15.46	8.06
25	.89	.79	5.05	1.457	14.18	7.35
26	.90	.79	5.06	1.418	10.89	6.54
27	1.04	.78	4.76	1.416	10.03	7.11
28	1.05	.78	4.60	1.401	7.90	6.35
29	1.06	.78	4.42	1.290	7.98	6.06
30	1.06	.77	4.22	1.328	6.72	5.58
31	1.07	.77	4.06	1.245	6.99	5.45
32	1.07	.77	4.18	1.179	5.76	5.14
33	.97	.77	3.95	1.076	5.66	4.30
34	1.09	.77	4.09	.999	6.38	5.01
35	1.08	.77	4.76	.970	7.69	5.81
36	1.08	.77	4.67	.924	8.65	5.86
37	1.00	.77	4.97	.792	9.20	5.50
38	1.08	.78	4.88	.812	10.58	6.17
39	1.09	.78	4.90	.822	10.44	6.23
40	1.07	.78	4.68	.780	12.33	6.17
41	1.07	.78	4.70	.753	12.05	6.07
42	1.05	.77	4.63	.691	14.61	6.17
43	1.03	.77	4.51	.667	15.46	6.06
44	1.02	.76	4.06	.733	14.38	5.75
45	1.01	.75	3.57	.751	13.80	5.33
46	1.02	.74	3.64	.708	12.80	5.15
47	1.01	.73	3.56	.694	12.08	4.93
48	1.00	.72	3.22	.761	11.59	4.78
49	.99	.71	2.98	.776	11.56	4.65
50	.98	.70	2.97	.780	10.76	4.50
51	1.00	.70	3.09	.731	9.62	4.28
52	1.01	.68	3.10	.780	7.68	4.07

ANNEXURE 7.8

ETo RESULTS FOR RAJKOT - BLANEY - CRIDDLE METHOD

WEEK NO.	CONSTANT a	RH MIN %	CONSTANT b	T MEAN °C	P CONSTANT	ETo mm/day
1	-2.0667	54.08	1.329	19.27	.245	3.43
2	-2.0734	56.17	1.329	18.91	.245	3.37
3	-2.0845	55.08	1.320	19.55	.245	3.42
4	-2.1123	50.75	1.373	19.78	.245	3.65
5	-2.0833	49.42	1.370	20.35	.253	3.93
6	-2.0599	50.67	1.351	20.75	.260	4.10
7	-2.0201	54.00	1.306	21.31	.260	4.03
8	-2.0854	51.25	1.374	22.05	.260	4.39
9	-2.0707	45.50	1.407	23.43	.260	4.80
10	-2.0119	46.64	1.372	25.05	.265	5.09
11	-1.9898	46.18	1.360	26.41	.270	5.41
12	-2.0303	48.00	1.386	26.03	.270	5.45
13	-2.0039	47.92	1.360	27.04	.270	5.50
14	-1.9684	45.58	1.365	28.59	.270	5.83
15	-2.0211	39.58	1.456	29.90	.285	6.99
16	-2.0665	36.00	1.530	30.73	.285	7.57
17	-2.0357	35.08	1.555	31.49	.285	7.92
18	-2.0153	39.58	1.511	31.80	.285	7.71
19	-2.0504	40.42	1.576	32.40	.295	8.58
20	-2.0841	37.17	1.633	32.88	.295	9.04
21	-2.0565	38.83	1.616	32.97	.295	8.97
22	-1.9987	42.00	1.524	32.73	.295	8.35
23	-1.9360	42.58	1.459	33.19	.300	8.24
24	-1.7696	51.08	1.279	32.41	.305	7.16
25	-1.6405	53.00	1.206	31.22	.305	6.58
26	-1.5834	62.83	1.090	30.69	.305	5.76
27	-1.5192	64.58	1.026	29.93	.305	5.28
28	-1.4518	70.83	.910	29.40	.305	4.51
29	-1.4254	69.83	.890	28.76	.305	4.33
30	-1.3600	74.92	.803	28.33	.305	3.78
31	-1.3490	72.33	.813	28.41	.305	3.87
32	-1.3851	76.50	.788	27.49	.290	3.33
33	-1.3380	75.92	.757	27.37	.290	3.18
34	-1.3733	74.75	.781	27.80	.290	3.33
35	-1.5788	68.08	.960	27.74	.290	4.20
36	-1.6640	64.58	1.037	28.13	.290	4.63
37	-1.7509	62.33	1.083	28.42	.280	4.64
38	-1.7501	58.75	1.112	28.89	.280	4.88
39	-1.7573	57.25	1.127	28.94	.280	4.97
40	-1.9411	51.08	1.270	29.27	.280	5.69
41	-1.9565	52.50	1.264	28.69	.260	5.01
42	-2.0230	45.42	1.333	28.40	.260	5.28
43	-2.0413	43.75	1.348	27.44	.260	5.19
44	-2.0324	46.25	1.346	26.71	.260	5.07
45	-2.0927	44.92	1.397	25.25	.255	4.89
46	-2.1170	46.83	1.385	24.57	.250	4.56
47	-2.0908	47.67	1.359	23.71	.250	4.33
48	-2.0866	46.50	1.385	22.57	.248	4.22
49	-2.1215	45.42	1.418	21.74	.245	4.15
50	-2.0795	48.92	1.369	21.39	.245	3.91
51	-2.0887	53.27	1.329	21.33	.245	3.72
52	-2.0811	58.27	1.300	19.38	.245	3.31

ANNEXURE 7.8

ETo RESULTS FOR RAJKOT - RADIATION METHOD

WEEK NO	C mm/day	W	Ra mm/day	Rs mm/day	N HOURS	ETo mm/day
1	.9379	.6772	10.630	7.38	10.863	4.39
2	.9343	.6731	10.630	7.47	10.863	4.40
3	.9212	.6804	10.630	7.50	10.863	4.40
4	.9521	.6830	10.630	7.55	10.863	4.61
5	.9606	.6903	11.430	7.92	11.109	4.95
6	.9554	.6957	12.244	8.37	11.409	5.27
7	.9269	.7034	12.244	8.22	11.409	5.06
8	.9515	.7133	12.244	8.55	11.409	5.50
9	.9710	.7271	13.244	8.98	11.654	6.04
10	.9682	.7433	14.158	9.22	12.000	6.34
11	.9687	.7569	14.158	9.05	12.000	6.33
12	.9546	.7531	14.158	9.39	12.000	6.45
13	.9581	.7632	14.158	9.20	12.000	6.43
14	.9615	.7757	15.486	9.71	12.646	6.94
15	.9780	.7823	15.486	9.92	12.646	7.29
16	.9997	.7901	15.486	10.15	12.646	7.72
17	1.0107	.7977	15.486	9.88	12.646	7.67
18	1.0005	.8008	16.314	10.40	13.191	8.04
19	1.0217	.8062	16.314	10.72	13.191	8.53
20	1.0253	.8103	16.314	10.88	13.191	8.74
21	1.0133	.8111	16.314	10.71	13.191	8.51
22	.9999	.8090	16.414	10.42	13.337	8.13
23	.9917	.8130	16.428	9.93	13.482	7.71
24	.9768	.8063	16.428	8.87	13.482	6.68
25	.9796	.7950	16.428	7.87	13.482	5.83
26	.9266	.7897	16.428	7.75	13.482	5.37
27	.9165	.7824	16.414	7.28	13.337	4.92
28	.8712	.7798	16.414	6.95	13.337	4.42
29	.8686	.7766	16.414	6.69	13.337	4.22
30	.8512	.7744	16.414	6.34	13.337	3.88
31	.8479	.7748	16.214	6.08	13.237	3.69
32	.8249	.7677	15.800	6.35	12.891	3.72
33	.8141	.7665	15.800	5.96	12.891	3.42
34	.8182	.7708	15.800	6.20	12.891	3.61
35	.8406	.7702	15.586	7.49	12.546	4.55
36	.8513	.7734	14.586	7.52	12.300	4.65
37	.8467	.7749	14.586	8.09	12.300	5.01
38	.8688	.7772	14.586	7.97	12.300	5.08
39	.8665	.7775	14.586	7.97	12.300	5.07
40	.8919	.7791	12.944	8.10	11.654	5.33
41	.8912	.7762	12.944	8.23	11.654	5.40
42	.9277	.7748	12.944	8.47	11.654	5.79
43	.9484	.7672	12.944	8.54	11.654	5.91
44	.9513	.7599	12.044	7.96	11.409	5.45
45	.9626	.7453	11.044	7.60	11.063	5.15
46	.9489	.7385	11.044	7.78	11.063	5.15
47	.9454	.7299	11.044	7.65	11.063	4.98
48	.9598	.7185	10.544	7.26	10.963	4.70
49	.9719	.7092	10.130	7.13	10.763	4.61
50	.9617	.7044	10.130	6.99	10.763	4.43
51	.9311	.7036	10.130	7.13	10.763	4.37
52	.9129	.6785	10.130	7.20	10.763	4.16

ANNEXURE 7.8

ETo RESULTS FOR RAJKOT - PAN EVAPORATION METHOD

WEEK NO	RH MEAN %	WIND m/sec	WIND Km/day	CONSTANT KP	EVAPO. mm/day	ETo mm/day
1	62.33	2.4300	210.0	.750	5.70	4.27
2	63.71	2.6300	227.2	.750	5.88	4.41
3	64.17	2.2400	193.5	.750	5.88	4.41
4	59.50	2.3200	200.4	.750	6.18	4.63
5	58.17	2.3800	205.6	.750	6.62	4.97
6	59.63	2.4500	211.7	.750	7.17	5.38
7	64.21	2.4700	213.4	.750	7.46	5.60
8	61.17	2.6400	228.1	.750	8.23	6.17
9	57.71	2.6500	229.0	.750	8.94	6.70
10	59.15	2.8000	241.9	.750	9.70	7.27
11	59.13	2.8100	242.8	.750	9.68	7.26
12	62.17	2.9900	258.3	.750	10.22	7.66
13	60.96	2.8200	243.6	.750	10.57	7.93
14	61.42	3.0700	265.2	.750	11.61	8.71
15	59.63	3.3000	285.1	.750	12.86	9.64
16	56.08	3.4200	295.5	.750	13.72	0.29
17	56.47	3.9800	343.9	.750	14.52	0.89
18	58.98	4.2200	364.6	.750	14.38	0.78
19	57.71	4.9000	423.4	.750	14.81	1.11
20	56.85	4.8200	416.4	.750	15.37	1.53
21	60.07	5.1800	447.6	.650	14.97	9.73
22	62.46	4.9100	424.2	.750	14.31	0.73
23	63.33	4.7500	410.4	.750	13.06	9.80
24	67.43	4.7800	413.0	.750	11.30	8.48
25	68.15	5.4700	472.6	.650	9.94	6.46
26	74.84	5.2900	457.1	.700	10.12	7.08
27	75.87	5.2800	456.2	.700	8.18	5.73
28	80.42	5.2100	450.1	.700	7.66	5.36
29	79.53	4.7000	406.1	.800	6.48	5.18
30	82.35	4.8800	421.6	.800	5.87	4.70
31	81.71	4.4900	387.9	.800	5.69	4.55
32	84.13	4.1900	362.0	.800	4.67	3.74
33	84.31	3.7100	320.5	.800	4.58	3.66
34	82.72	3.3600	290.3	.800	5.03	4.02
35	79.12	3.2200	278.2	.800	5.55	4.44
36	77.02	3.0200	260.9	.800	6.26	5.01
37	75.93	2.4100	208.2	.800	6.32	5.06
38	73.03	2.5000	216.0	.800	6.57	5.26
39	73.47	2.5400	219.5	.800	6.25	5.00
40	69.23	2.3500	203.0	.750	7.27	5.45
41	68.94	2.2300	192.7	.750	7.64	5.73
42	61.75	1.9400	167.6	.800	8.04	6.43
43	57.30	1.8300	158.1	.800	7.58	6.06
44	58.58	2.1400	184.9	.750	7.37	5.53
45	56.81	2.2200	191.8	.750	7.09	5.32
46	58.34	2.0200	174.5	.800	6.96	5.57
47	58.68	1.9600	169.3	.800	6.18	4.94
48	57.60	2.2600	195.3	.750	6.22	5.17
49	55.59	2.3300	201.3	.750	6.65	4.99
50	57.77	2.3500	203.0	.750	6.03	4.52
51	62.10	2.1300	184.0	.750	5.83	4.37
52	65.93	2.3500	203.0	.750	5.93	4.45

ANNEXURE 7.8

ETo RESULTS FOR RAJKOT - HARGREAVES & JENSEN HAISE METHOD

WEEKS	MEAN TEMP °C	RS mm/day	ETo mm/day	
			HARG	JEN-HAI
1	19.27	7.38	4.43	4.53
2	18.91	7.47	4.44	4.52
3	19.55	7.50	4.54	4.65
4	19.78	7.55	4.59	4.71
5	20.35	7.92	4.89	5.04
6	20.75	8.37	5.22	5.40
7	21.31	8.22	5.21	5.41
8	22.05	8.55	5.52	5.76
9	23.43	8.98	6.00	6.32
10	25.05	9.22	6.40	6.82
11	26.41	9.05	6.48	6.96
12	26.03	9.39	6.66	7.14
13	27.04	9.20	6.68	7.20
14	28.59	9.71	7.29	7.93
15	29.90	9.92	7.66	8.38
16	30.73	10.15	7.98	8.76
17	31.49	9.88	7.89	8.69
18	31.80	10.40	8.35	9.22
19	32.40	10.72	8.71	9.64
20	32.88	10.88	8.93	9.90
21	32.97	10.71	8.81	9.77
22	32.73	10.42	8.53	9.45
23	33.19	9.93	8.20	9.10
24	32.41	8.87	7.21	7.98
25	31.22	7.87	6.25	6.88
26	30.69	7.75	6.09	6.68
27	29.93	7.28	5.63	6.16
28	29.40	6.95	5.31	5.80
29	28.76	6.69	5.04	5.49
30	28.33	6.34	4.74	5.14
31	28.41	6.08	4.55	4.94
32	27.49	6.35	4.66	5.03
33	27.37	5.96	4.36	4.71
34	27.80	6.20	4.58	4.95
35	27.74	7.49	5.52	5.98
36	28.13	7.52	5.59	6.06
37	28.42	8.09	6.05	6.57
38	28.89	7.97	6.03	6.56
39	28.94	7.97	6.03	6.57
40	29.27	8.10	6.17	6.73
41	28.69	8.23	6.20	6.74
42	28.40	8.47	6.34	6.88
43	27.44	8.54	6.26	6.76
44	26.71	7.96	5.74	6.17
45	25.25	7.60	5.30	5.65
46	24.57	7.78	5.34	5.67
47	23.71	7.65	5.14	5.43
48	22.57	7.26	4.75	4.97
49	21.74	7.13	4.56	4.76
50	21.39	6.99	4.44	4.61
51	21.33	7.13	4.52	4.69
52	19.38	7.20	4.33	4.43

ANNEXURE 7.8

ETo RESULTS FOR RAJKOT - THORNTHWAITE METHOD

WEEK NO	T mean °C	UNADJUSTED ETo mm/month	CORRECTION FACTOR	ETo mm/day
1	19.27	36.89	0.941	1.22
2	18.91	36.17	0.941	1.13
3	19.55	41.11	0.941	1.29
4	19.78	43.00	0.941	1.35
5	20.35	47.96	0.915	1.46
6	20.75	51.69	0.895	1.54
7	21.31	57.26	0.895	1.71
8	22.05	65.29	0.895	1.95
9	23.43	82.46	0.972	2.67
10	25.05	106.63	1.030	3.66
11	26.41	130.67	1.030	4.49
12	26.03	123.58	1.030	4.24
13	27.04	143.06	1.034	4.93
14	28.59	177.26	1.055	6.23
15	29.90	210.58	1.055	7.41
16	30.73	233.96	1.055	8.23
17	31.49	257.01	1.055	9.04
18	31.80	266.87	1.127	10.03
19	32.40	286.76	1.139	10.89
20	32.88	303.44	1.139	11.52
21	32.97	306.65	1.139	11.64
22	32.73	298.15	1.133	11.26
23	33.19	314.59	1.124	11.79
24	32.41	287.10	1.124	10.76
25	31.22	248.64	1.124	9.32
26	30.69	232.79	1.128	8.75
27	29.93	211.40	1.154	8.13
28	29.40	197.36	1.154	7.59
29	28.76	181.35	1.154	6.98
30	28.33	171.14	1.154	6.58
31	28.41	173.01	1.126	6.49
32	27.49	152.44	1.115	5.67
33	27.37	149.89	1.115	5.57
34	27.80	159.15	1.115	5.92
35	27.74	157.84	1.088	5.72
36	28.13	166.54	1.020	5.66
37	28.42	173.24	1.020	5.89
38	28.89	184.52	1.020	6.27
39	28.94	185.75	1.020	6.32
40	29.27	194.03	0.995	6.44
41	28.69	179.66	0.995	5.96
42	28.40	172.77	0.995	5.73
43	27.44	151.37	0.995	5.02
44	26.71	136.47	0.953	4.34
45	25.25	109.94	0.921	3.38
46	24.57	98.98	0.921	3.04
47	23.71	86.31	0.921	2.65
48	22.57	71.41	0.922	2.19
49	21.74	61.83	0.926	1.91
50	21.39	58.09	0.926	1.79
51	21.33	57.47	0.926	1.77
52	19.38	39.75	0.926	1.23

ANNEXURE 7.9

ETo RESULTS FOR JUNAGADH - PENMAN METHOD

WEEK NO	C	W	Rn	f(u)	(ea-ed)	ETo mm/day
1	1.02	.69	3.02	.674	11.80	4.68
2	1.00	.69	2.92	.701	13.28	4.93
3	.99	.68	2.90	.635	13.84	4.74
4	1.01	.69	2.96	.665	13.56	4.91
5	1.07	.69	3.40	.682	13.44	5.55
6	1.07	.70	3.64	.699	14.34	5.96
7	1.06	.71	3.70	.677	15.10	5.91
8	1.08	.73	3.83	.717	16.22	6.44
9	1.10	.73	4.20	.724	16.45	6.87
10	1.12	.75	4.54	.783	18.41	7.91
11	1.13	.76	4.51	.788	19.24	8.01
12	1.14	.76	4.66	.824	18.56	8.25
13	1.12	.77	4.57	.850	21.22	8.55
14	1.10	.77	4.94	.829	23.45	9.05
15	1.04	.78	5.26	.836	20.94	8.28
16	1.01	.78	5.30	.829	22.16	8.23
17	1.04	.78	5.71	.814	19.58	8.21
18	1.01	.79	5.89	.851	18.20	8.03
19	1.00	.79	5.89	.873	21.25	8.50
20	1.01	.80	6.20	.916	18.65	8.47
21	1.00	.80	6.18	.955	17.19	8.24
22	.99	.79	6.09	.976	18.35	8.43
23	.97	.79	5.43	.973	15.24	7.19
24	.96	.78	5.09	.945	13.11	6.41
25	.93	.78	4.34	.937	11.52	5.34
26	.94	.78	4.27	.878	10.09	4.96
27	1.07	.77	4.39	.937	9.06	5.69
28	.98	.77	3.81	.923	9.35	4.79
29	.99	.77	3.75	.855	4.03	3.63
30	.98	.77	3.39	.908	4.70	3.52
31	.98	.76	3.68	.877	4.04	3.59
32	.99	.76	3.43	.859	5.55	3.70
33	1.00	.76	3.30	.730	5.22	3.43
34	1.00	.75	3.85	.724	5.19	3.84
35	1.08	.76	4.05	.670	7.93	4.69
36	1.08	.76	4.14	.607	8.59	4.74
37	1.09	.76	4.68	.599	8.75	5.25
38	1.08	.76	4.79	.539	10.06	5.33
39	1.08	.77	4.82	.551	10.63	5.47
40	1.06	.78	4.50	.612	11.78	5.41
41	1.06	.78	4.45	.565	16.68	5.87
42	1.06	.78	4.62	.620	15.13	6.04
43	1.03	.77	4.28	.626	18.40	6.11
44	1.02	.76	3.81	.679	18.03	5.95
45	1.00	.75	3.19	.604	18.27	5.10
46	.99	.75	3.14	.602	17.78	5.00
47	1.01	.73	3.20	.547	14.96	4.56
48	1.00	.72	2.97	.636	14.19	4.65
49	1.02	.71	2.95	.644	11.44	4.29
50	1.01	.70	2.77	.641	12.14	4.28
51	1.01	.70	2.73	.580	12.51	4.11
52	1.00	.69	2.67	.613	12.41	4.19

ANNEXURE 7.9

ETo RESULTS FOR JUNAGADH - BLANEY - CRIDDLE METHOD

WEEK NO.	CONSTANT a	RH MIN %	CONSTANT b	T MEAN °C	P CONSTANT	ETo mm/day
1	-2.0848	30.00	1.468	20.12	.247	4.17
2	-2.1121	26.00	1.525	20.20	.247	4.40
3	-2.1629	24.00	1.545	19.89	.247	4.38
4	-2.1599	23.00	1.563	20.41	.247	4.55
5	-2.1370	23.00	1.554	20.55	.253	4.74
6	-2.1030	22.00	1.543	21.19	.260	5.02
7	-2.0972	26.00	1.505	22.19	.260	5.03
8	-2.1364	25.00	1.556	23.70	.260	5.51
9	-2.0934	25.00	1.527	24.10	.260	5.49
10	-2.0773	20.00	1.571	25.44	.265	6.12
11	-2.0583	19.00	1.563	26.36	.270	6.44
12	-2.0535	24.00	1.543	26.85	.270	6.43
13	-2.0462	22.00	1.561	28.10	.270	6.77
14	-2.0254	18.00	1.558	28.67	.270	6.89
15	-2.0193	22.00	1.531	29.72	.283	7.37
16	-2.0497	21.00	1.561	29.88	.283	7.56
17	-2.0809	27.00	1.541	30.17	.283	7.46
18	-1.9804	34.00	1.426	30.49	.283	6.90
19	-2.0221	28.00	1.509	31.31	.293	7.88
20	-2.0115	37.00	1.448	31.62	.293	7.56
21	-1.9548	44.00	1.370	31.76	.293	7.12
22	-1.9636	41.00	1.400	31.31	.293	7.23
23	-1.7530	49.00	1.202	31.07	.298	6.23
24	-1.6489	55.00	1.096	30.26	.303	5.63
25	-1.4698	58.00	.961	29.75	.303	4.85
26	-1.4362	62.00	.905	29.03	.303	4.42
27	-1.4381	68.00	.869	28.58	.303	4.13
28	-1.3413	62.00	.850	28.39	.303	4.08
29	-1.2138	85.00	.609	27.66	.303	2.61
30	-1.1646	80.00	.608	27.43	.303	2.64
31	-1.2280	82.00	.635	26.92	.303	2.69
32	-1.2318	74.00	.683	26.67	.290	2.78
33	-1.1944	76.00	.637	26.72	.290	2.55
34	-1.3247	75.00	.725	26.06	.290	2.88
35	-1.4508	64.00	.866	26.95	.290	3.67
36	-1.5489	63.00	.923	26.86	.290	3.90
37	-1.7126	58.00	1.048	26.84	.280	4.26
38	-1.7390	60.00	1.040	27.31	.280	4.25
39	-1.7500	58.00	1.059	27.97	.280	4.44
40	-1.8582	54.00	1.158	28.91	.280	5.05
41	-1.9973	36.00	1.333	29.10	.260	5.42
42	-2.0126	42.00	1.326	28.68	.260	5.29
43	-2.0393	31.00	1.411	27.92	.260	5.61
44	-2.0727	27.00	1.480	26.85	.260	5.76
45	-2.0476	24.00	1.447	26.24	.255	5.36
46	-2.0350	24.00	1.436	25.61	.250	5.07
47	-2.0108	29.00	1.372	24.28	.250	4.56
48	-2.0430	30.00	1.423	23.21	.249	4.56
49	-2.0338	38.00	1.372	22.32	.247	4.16
50	-2.0238	30.00	1.411	21.44	.247	4.20
51	-2.0309	29.00	1.399	21.26	.247	4.11
52	-2.0441	27.00	1.432	20.31	.247	4.09

ANNEXURE 7.9

ETo RESULTS FOR JUNAGADH - RADIATION METHOD

WEEK NO	C mm/day	W	Ra mm/day	Rs mm/day	N HOURS	ETo mm/day
1	.9858	.6850	10.825	7.06	10.910	4.47
2	1.0196	.6862	10.825	7.11	10.910	4.68
3	1.0249	.6821	10.825	7.34	10.910	4.83
4	1.0159	.6891	10.825	7.30	10.910	4.81
5	1.0139	.6911	11.725	7.77	11.140	5.15
6	1.0243	.7002	12.400	7.98	11.440	5.43
7	1.0181	.7136	12.400	8.05	11.440	5.55
8	1.0193	.7287	12.400	8.27	11.440	5.84
9	1.0177	.7327	13.300	8.58	11.670	6.10
10	1.0358	.7461	14.250	8.93	12.000	6.60
11	1.0342	.7553	14.250	8.76	12.000	6.55
12	1.0218	.7602	14.250	8.88	12.000	6.60
13	1.0429	.7722	14.250	8.77	12.000	6.76
14	1.0594	.7750	15.525	9.26	12.630	7.30
15	1.0133	.7803	15.525	9.35	12.630	7.09
16	1.0249	.7811	15.525	9.55	12.630	7.34
17	.9878	.7834	15.525	9.99	12.630	7.43
18	.9729	.7866	16.275	9.90	13.160	7.28
19	1.0009	.7948	16.300	10.05	13.160	7.69
20	.9744	.7979	16.300	10.27	13.160	7.69
21	.9557	.7993	16.300	10.06	13.160	7.38
22	.9805	.7948	16.400	10.08	13.290	7.56
23	.9363	.7924	16.400	8.64	13.420	6.11
24	.9092	.7843	16.400	8.00	13.420	5.40
25	.8876	.7804	16.400	6.64	13.420	4.30
26	.8645	.7768	16.400	6.50	13.420	4.07
27	.8559	.7746	16.375	6.72	13.290	4.15
28	.8617	.7736	16.375	5.71	13.290	3.51
29	.7610	.7683	16.375	5.48	13.290	2.90
30	.7798	.7660	16.375	4.90	13.290	2.63
31	.7665	.7609	16.150	5.41	13.190	2.86
32	.7964	.7584	15.825	5.06	12.860	2.76
33	.7774	.7589	15.825	4.84	12.860	2.55
34	.7803	.7523	15.825	5.83	12.860	3.12
35	.8239	.7612	15.450	6.30	12.530	3.65
36	.8305	.7603	14.650	6.66	12.300	3.91
37	.8330	.7601	14.650	7.71	12.300	4.58
38	.8447	.7648	14.650	7.96	12.300	4.84
39	.8493	.7714	14.650	7.98	12.300	4.93
40	.8674	.7762	13.075	7.72	11.670	4.90
41	.9308	.7772	13.075	8.12	11.670	5.57
42	.9223	.7751	13.075	8.39	11.670	5.70
43	.9767	.7709	13.075	8.25	11.670	5.91
44	.9940	.7602	12.200	7.80	11.440	5.59
45	.9944	.7541	11.225	6.96	11.110	4.92
46	.9963	.7478	11.225	6.89	11.110	4.84
47	.9659	.7345	11.225	6.88	11.110	4.58
48	.9807	.7238	10.700	6.75	11.010	4.49
49	.9444	.7149	10.325	6.65	10.810	4.19
50	.9688	.7037	10.325	6.42	10.810	4.07
51	.9704	.7012	10.325	6.43	10.810	4.08
52	.9866	.7019	10.325	6.45	10.810	4.17

ANNEXURE 7.9

ETo RESULTS FOR JUNAGADH - PAN EVAPORATION METHOD

WEEK NO	RH MEAN %	WIND m/sec	WIND Km/day	CONSTANT KP	EVAPO. mm/day	ETo mm/day
1	50.00	1.8600	160.7	.800	6.43	5.14
2	44.00	1.9900	171.9	.800	6.37	5.10
3	40.50	1.6800	145.2	.800	6.20	4.96
4	43.50	1.8200	157.2	.800	6.62	5.30
5	44.50	1.9000	164.2	.800	7.09	5.67
6	43.00	1.9800	171.1	.800	7.61	6.09
7	43.50	1.8800	162.4	.800	7.40	5.92
8	44.50	2.0600	178.0	.750	8.03	6.02
9	45.00	2.0900	180.6	.750	8.63	6.47
10	43.00	2.3600	203.9	.750	9.55	7.16
11	43.50	2.3900	206.5	.750	9.44	7.08
12	47.00	2.5600	221.2	.750	9.97	7.48
13	43.50	2.6800	231.6	.750	10.25	7.69
14	39.50	2.5800	222.9	.650	10.72	6.97
15	49.00	2.6100	225.5	.750	10.35	7.76
16	46.50	2.5800	222.9	.750	10.59	7.94
17	53.50	2.5100	216.9	.750	10.25	7.69
18	57.50	2.6800	231.6	.750	9.66	7.24
19	52.50	2.7800	240.2	.750	10.49	7.87
20	59.00	2.9800	257.5	.750	11.45	8.59
21	62.50	3.1600	273.0	.750	11.45	8.59
22	59.00	3.2600	281.7	.750	11.00	8.25
23	65.50	3.2400	279.9	.750	9.84	7.38
24	69.00	3.1100	268.7	.750	8.42	6.32
25	72.00	3.0800	266.1	.800	8.44	6.75
26	74.50	2.8000	241.9	.800	7.85	6.28
27	76.50	3.0700	265.2	.800	7.52	6.02
28	75.50	3.0100	260.1	.800	6.81	5.45
29	89.00	2.7000	233.3	.800	6.22	4.98
30	87.00	2.9400	254.0	.800	6.26	5.01
31	88.50	2.8000	241.9	.800	5.48	4.38
32	84.00	2.7200	235.0	.800	4.61	3.69
33	85.00	2.1200	183.2	.800	4.34	3.47
34	84.50	2.0900	180.6	.800	5.20	4.16
35	77.50	1.8400	159.0	.850	4.83	4.11
36	75.50	1.5500	133.9	.850	4.01	3.41
37	75.00	1.5200	131.3	.850	4.68	3.98
38	72.00	1.2400	107.1	.850	4.77	4.05
39	71.50	1.2900	111.5	.850	4.80	4.08
40	70.00	1.5800	136.5	.850	6.16	5.24
41	58.00	1.3600	117.5	.800	6.22	4.98
42	61.00	1.6100	139.1	.800	6.89	5.51
43	50.50	1.6400	141.7	.800	6.81	5.45
44	48.50	1.8900	163.3	.800	6.65	5.32
45	46.00	1.5400	133.1	.800	6.61	5.29
46	45.50	1.5300	132.2	.800	5.82	4.66
47	50.50	1.2800	110.6	.800	5.15	4.12
48	50.00	1.6900	146.0	.800	5.88	4.70
49	57.50	1.7300	149.5	.800	5.58	4.46
50	52.50	1.7100	147.7	.800	5.49	4.39
51	50.50	1.4300	123.6	.800	5.04	4.03
52	48.00	1.5800	136.5	.800	5.06	4.05

ANNEXURE 7.9

ETo RESULTS FOR JUNAGADH - HARGREAVES & JENSEN HAISE METHOI

WEEKS	MEAN TEMP °C	RS mm/day	ETo mm/day	
			HARG	JEN-HAI
1	20.12	7.06	4.33	4.35
2	20.20	7.11	4.37	4.39
3	19.89	7.34	4.48	4.48
4	20.41	7.30	4.52	4.54
5	20.55	7.77	4.82	4.86
6	21.19	7.98	5.04	5.10
7	22.19	8.05	5.21	5.32
8	23.70	8.27	5.56	5.73
9	24.10	8.58	5.82	6.02
10	25.44	8.93	6.25	6.52
11	26.36	8.76	6.26	6.57
12	26.85	8.88	6.42	6.75
13	28.10	8.77	6.52	6.90
14	28.67	9.26	6.97	7.40
15	29.72	9.35	7.19	7.69
16	29.88	9.55	7.37	7.88
17	30.17	9.99	7.76	8.31
18	30.49	9.90	7.74	8.30
19	31.31	10.05	7.99	8.61
20	31.62	10.27	8.22	8.86
21	31.76	10.06	8.07	8.71
22	31.31	10.08	8.02	8.63
23	31.07	8.64	6.84	7.35
24	30.26	8.00	6.23	6.67
25	29.75	6.64	5.11	5.46
26	29.03	6.50	4.93	5.25
27	28.58	6.72	5.05	5.36
28	28.39	5.71	4.27	4.53
29	27.66	5.48	4.03	4.26
30	27.43	4.90	3.59	3.79
31	26.92	5.41	3.92	4.12
32	26.67	5.06	3.64	3.83
33	26.72	4.84	3.49	3.67
34	26.06	5.83	4.14	4.33
35	26.95	6.30	4.57	4.80
36	26.86	6.66	4.82	5.07
37	26.84	7.71	5.57	5.86
38	27.31	7.96	5.81	6.13
39	27.97	7.98	5.91	6.26
40	28.91	7.72	5.84	6.21
41	29.10	8.12	6.17	6.57
42	28.68	8.39	6.31	6.71
43	27.92	8.25	6.11	6.46
44	26.85	7.80	5.64	5.93
45	26.24	6.96	4.96	5.20
46	25.61	6.89	4.84	5.06
47	24.28	6.88	4.69	4.85
48	23.21	6.75	4.48	4.60
49	22.32	6.65	4.32	4.41
50	21.44	6.42	4.08	4.14
51	21.26	6.43	4.07	4.12
52	21.31	6.45	4.08	4.14

ANNEXURE 7.9

ETo RESULTS FOR JUNAGADH - THORNTHWAITE METHOD

WEEK NO	T mean °C	UNADJUSTED ETo mm/month	CORRECTION FACTOR	ETo mm/day
1	20.12	47.79	0.944	1.50
2	20.20	48.50	0.944	1.53
3	19.89	45.78	0.944	1.44
4	20.41	50.40	0.944	1.59
5	20.55	51.70	0.917	1.58
6	21.19	57.95	0.897	1.73
7	22.19	68.80	0.897	2.06
8	23.70	87.90	0.897	2.63
9	24.10	93.55	0.973	3.03
10	25.44	114.42	1.030	3.93
11	26.36	130.60	1.030	4.48
12	26.85	139.86	1.030	4.80
13	28.10	165.67	1.033	5.70
14	28.67	178.53	1.053	6.27
15	29.72	204.10	1.053	7.16
16	29.88	208.22	1.053	7.31
17	30.17	215.84	1.053	7.58
18	30.49	224.49	1.124	8.41
19	31.31	247.79	1.136	9.38
20	31.62	257.05	1.136	9.73
21	31.76	261.31	1.136	9.89
22	31.31	247.79	1.129	9.33
23	31.07	240.80	1.119	8.98
24	30.26	218.25	1.119	8.14
25	29.75	204.87	1.119	7.64
26	29.03	187.02	1.123	7.00
27	28.58	176.45	1.149	6.76
28	28.39	172.13	1.149	6.59
29	27.65	156.01	1.149	5.98
30	27.43	151.44	1.149	5.80
31	26.92	141.22	1.123	5.29
32	26.67	136.40	1.113	5.06
33	26.72	137.36	1.113	5.10
34	26.06	125.15	1.113	4.64
35	26.95	141.81	1.086	5.13
36	26.86	140.06	1.020	4.76
37	26.84	139.67	1.020	4.75
38	27.31	148.99	1.020	5.07
39	27.97	162.84	1.020	5.54
40	28.91	184.16	0.997	6.12
41	29.10	188.70	0.997	6.27
42	28.68	178.76	0.997	5.94
43	27.92	161.76	0.997	5.38
44	26.85	139.86	0.955	4.45
45	26.24	128.40	0.924	3.95
46	25.61	117.29	0.924	3.61
47	24.28	96.18	0.924	2.96
48	23.21	81.33	0.926	2.51
49	22.32	70.31	0.931	2.18
50	21.44	60.54	0.931	1.88
51	21.26	58.67	0.931	1.82
52	20.31	49.49	0.931	1.54