FORTRAN CODES TO ACCESS THE DATA

Also available in the Raich and Potter 1996 dataset at CDIAC:
http://cdiac.ornl.gov/epubs/db/db1015/db1015.html

A FORTRAN program designed to read and print the contents of these ASCII data is also included below.

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C FORTRAN 77 CODE TO (1) READ GRIDDED (0.5 degrees) GLOBAL SOIL EMISSIONS AND
C LAND-MASK INFORMATION AND (2) LABEL GRID-CELLS WITH  LATITUDE/LONGITUDE
C LOCATIONS
C CDIAC - AB - 3/96
C====
      REAL LAT,LONG,LAND
C
C ARRAY SF CONTAINS THE RAICH AND POTTER MODELED ANNUAL SOIL
C CO2 EMISSIONS.
C ARRAY TSF CONTAINS THE RAICH AND POTTER MODELED MONTHLY SOIL
C CO2 EMISSIONS.
C ARRAY SSF CONTAINS THE ANNUAL SUM OF THE RAICH AND POTTER
C MODELED MONTHLY SOIL CO2 EMISSIONS.
C
      DIMENSION LAND(360,720),SF(360,720)
      DIMENSION SSF(360,720),TSF(12,360,720)
C====
C CALCULATE GRID CELL AREAS WITH THE PROGRAM FROM THE GODDARD INSTITUTE
C FOR SPACE STUDIES
      PARAMETER (IM=720,JM=360)
      REAL DXYP(JM),DXV(JM),COSP(JM)
      TWOPI=6.283185
      RADIUS=6375000.
      DLON=TWOPI/IM
      DLAT=.5*TWOPI/(JM-1)
      FJEQ=.5*(JM+1)
      COSP(1)=0.
      COSP(JM)=0.
      DO 10 J=2,JM-1
   10 COSP(J)=COS(DLAT*(J-FJEQ))
      DO 20 J=2,JM
   20 DXV(J)=.5*RADIUS*DLON*(COSP(J-1)+COSP(J))
      DXYP(1)=.25*DXV(2)*RADIUS*DLAT
      DXYP(JM)=.25*DXV(JM)*RADIUS*DLAT
      DO 30 I=1,IM
      DO 30 J=2,JM-1
        DXYP(J)=.5*(DXV(J)+DXV(J+1))*RADIUS*DLAT
30    CONTINUE
C====
C FOR LAND/WATER DISTINCTION:
      OPEN(8,FILE='landmask.dat',STATUS='OLD')
C FOR YEARLY INPUT:
      OPEN(10,FILE='rp-modelb_ann.dat',STATUS='OLD')
C FOR MONTHLY INPUT:
      OPEN(12,FILE='rp-modelb_jan.dat',STATUS='OLD')
      OPEN(14,FILE='rp-modelb_feb.dat',STATUS='OLD')
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      OPEN(16,FILE='rp-modelb_mar.dat',STATUS='OLD')
      OPEN(18,FILE='rp-modelb_apr.dat',STATUS='OLD')
      OPEN(20,FILE='rp-modelb_may.dat',STATUS='OLD')
      OPEN(22,FILE='rp-modelb_jun.dat',STATUS='OLD')
      OPEN(24,FILE='rp-modelb_jul.dat',STATUS='OLD')
      OPEN(26,FILE='rp-modelb_aug.dat',STATUS='OLD')
      OPEN(28,FILE='rp-modelb_sep.dat',STATUS='OLD')
      OPEN(30,FILE='rp-modelb_oct.dat',STATUS='OLD')
      OPEN(32,FILE='rp-modelb_nov.dat',STATUS='OLD')
      OPEN(34,FILE='rp-modelb_dec.dat',STATUS='OLD')
C FOR OUTPUT:
      OPEN(36,FILE='RP_ANN.SE',STATUS='UNKNOWN')
      OPEN(38,FILE='RP_ANN.ALL',STATUS='UNKNOWN')
C====
C INITIALIZE ARRAYS:
      DO 40 I=1,360
       DO 40 JJ=1,720
        LAND(I,JJ)=0.D0
        SF(I,JJ)=0.D0
        SSF(I,JJ)=0.D0
        DO 40 II=1,12
         TSF(II,I,JJ)=0.D0
40    CONTINUE
C====
C FILL LAND/WATER ARRAY OF 0.5*0.5 DEGREE GRID-CELLS BY READING VALUES
C READ FIRST 6 LINES
      DO 50 I=1,6
50     READ(8,*)
      DO 60 I=1,360
C VALUES ARE ZEROS OR ONES
60     READ(8,*)(LAND(I,JJ),JJ=1,720)
      CLOSE(UNIT=8)
C====
C FILL EMISSION ARRAY OF 0.5*0.5 DEGREE GRIDCELLS/MONTH BY READING VALUES
C READ MONTHLY FILES
      DO 70 II=1,12
       IF(II.EQ.1)INFILE=12
       IF(II.EQ.2)INFILE=14
       IF(II.EQ.3)INFILE=16
       IF(II.EQ.4)INFILE=18
       IF(II.EQ.5)INFILE=20
       IF(II.EQ.6)INFILE=22
       IF(II.EQ.7)INFILE=24
       IF(II.EQ.8)INFILE=26
       IF(II.EQ.9)INFILE=28
       IF(II.EQ.10)INFILE=30
       IF(II.EQ.11)INFILE=32
       IF(II.EQ.12)INFILE=34
C READ FIRST 6 LINES
      DO 65 I=1,6
65     READ(INFILE,*)
       DO 70 I=1,360
C VALUES ARE IN UNITS OF '100 * G C/M2' == 100 TIMES GRAMS C
        READ(INFILE,*)(TSF(II,I,JJ),JJ=1,720)
        DO 70 JJ=1,720
C CHECK WITH LAND/WATER VALUES IF EMISSION VALUE SHOULD BE KEPT
         IF(LAND(I,JJ).LE.0.D0) TSF(II,I,JJ)=0.D0
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C SUM MONTHLY VALUES TO YEARLY VALUES
         SSF(I,JJ)=SSF(I,JJ)+TSF(II,I,JJ)
70    CONTINUE
      CLOSE(UNIT=12)
      CLOSE(UNIT=14)
      CLOSE(UNIT=16)
      CLOSE(UNIT=18)
      CLOSE(UNIT=20)
      CLOSE(UNIT=22)
      CLOSE(UNIT=24)
      CLOSE(UNIT=26)
      CLOSE(UNIT=28)
      CLOSE(UNIT=30)
      CLOSE(UNIT=32)
      CLOSE(UNIT=34)
C====
C READ YEARLY VALUES
C READ FIRST 6 LINES
      DO 75 I=1,6
75     READ(10,*)
      LONG=-179.75D0
      LAT=89.75D0
      II=0
      SUMA=0.D0
      SUMM=0.D0
      DO 90 I=1,359
       II=II+1
C VALUES ARE IN UNITS OF '100 * G C/M2' == 100 TIMES GRAMS C
       READ(10,*)(SF(I,JJ),JJ=1,720)
C SKIP AROUND THE EQUATOR
       IF(LAT.EQ.0.25D0) THEN
         LAT=-0.25D0
C LINE UP CALCULATED CELL AREA (DXYP) WITH LATITUDE
         II=II+1
       ENDIF
       DO 80 JJ=1,719
C CHECK WITH LAND/WATER VALUES IF EMISSION VALUE SHOULD BE KEPT
        IF(LAND(I,JJ).LE.0.D0) SF(I,JJ)=0.D0
C SUM TO GLOBAL EMISSIONS:
        SUMA=SUMA+SF(I,JJ)*DXYP(II)
        SUMM=SUMM+SSF(I,JJ)*DXYP(II)
C WRITE OUT > RP_ANN.SE:
        IF(SF(I,JJ).GT.0.D0) WRITE(36,'(7(2X,G12.6))')
     & LAT,LONG,SF(I,JJ),SSF(I,JJ),LAND(I,JJ),DXYP(II)
C WRITE OUT ALL:
         WRITE(38,'(7(2X,G12.6))') LAT,LONG,SF(I,JJ)
        LONG=LONG+0.5D0
        TLONG=TLONG+0.5D0
C SKIP AROUND THE GREENWICH TIMELINE
        IF(LONG.EQ.-0.25D0) THEN
          LONG=0.25D0
        ENDIF
80     CONTINUE
       LAT=LAT-0.5D0
       LONG=-179.75D0
90    CONTINUE
      CLOSE(UNIT=10)
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      CLOSE(UNIT=36)
c WRITE OUT SUMS AS OVERALL CHECK (executed on a DEC-ALPHA)
      WRITE (6,*) SUMA,SUMM
C SUMA=  7.7761701E+18  SUMM=  7.7761701E+18 >> 77.8 P gC/yr
      STOP
      END
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Reference:

CDIAC 1996 (Revised for the web 2002). Global Patterns of Carbon Dioxide Emissions from Soils on a 0.5 Degree Grid Cell Basis. DB-1015. Contributed by James W. Raich and Christopher S. Potter. Available on-line from the Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, Oak Ridge, Tennessee.