MM5 CONFIGURE.USER

```
# Sections
# This configure.user.linux file is used to compile on PC running linux only.
#    For options to compile on Unix systems, please use configure.user
# 1. System Variables
# 2. User Variables
# 3. Fortran options
#    3i. PC_PGF77 (Linux)
# 4. General commands
# 5. Options for making "./include/parame.incl"
# 6. Physics Options (memory related)
#
#-----------------------------------------------------------------------------
# 1. System Variables
#-----------------------------------------------------------------------------
SHELL =     /bin/sh
.SUFFIXES: .F .i .o .f
#-----------------------------------------------------------------------------
# 2. User Variables
#-----------------------------------------------------------------------------
# RUNTIME_SYSTEM        - Currently supported systems.
#                         PC_PGF77
RUNTIME_SYSTEM = "PC_PGF77"
#
#-----------------------------------------------------------------------------
# 3. Fortran options
#-----------------------------------------------------------------------------
LIBINCLUDE = $(DEVTOP)/include
#-----------------------------------------------------------------------------
#    3i. PC running Linux and using pgf77 compiler
#        You may also need to unlimit stacksize by typing
#            limit stacksize unlimited
#        or
#            setenv MPSTKZ 8M
#        (or bigger.)
#
#        Add -Kieee option if you compile Gayno-Seaman PBL scheme (IBLTYP=6).
```

```
#           MM5 will fail without this option until the compiler bug is fixed.
#-----------------------------------------------------------------------------
#    3i1. PC_PGF77 (LINUX/Portland Group Inc.)
#         pgf77 version 1.6 and above
#         May use pgf90 if the version is 3.1-4
#-----------------------------------------------------------------------------
 FC = pgf90
 FCFLAGS = -I$(LIBINCLUDE) -O2 -Mcray=pointer -pc 64 -DDEC_ALPHA -Mnoframe -byteswapio -Wl,-Bstatic
 CPP = /lib/cpp
 CFLAGS = -O
 CPPFLAGS = -I$(LIBINCLUDE)
  LDOPTIONS = -O2 -Mcray=pointer -tp amd64 -pc 64 -Mlarge_arrays -mcmodel=medium -DDEC_ALPHA –Mnoframe
-byteswapio -Wl,-Bstatic
 LDFLAGS = -L/usr/pgi/linux86-64/6.0/liblf
 LOCAL_LIBRARIES =
 MAKE = make -i -r
#-----------------------------------------------------------------------------
# 4. General commands
#-----------------------------------------------------------------------------
AR = ar ru
RM = rm -f
RM_CMD = $(RM) *.CKP *.ln *.BAK *.bak *.o *.i core errs ,* *~ *.a \
.emacs_* tags TAGS make.log MakeOut *.f !
GREP = grep -s
CC = cc
#-----------------------------------------------------------------------------
# 5. Options for making ./include/parame.incl
#-----------------------------------------------------------------------------
#
# FDDAGD (integer)                  - "1" -> FDDA gridded run
FDDAGD = 1
#
# FDDAOBS (integer)                 - "1" -> FDDA obs run
FDDAOBS = 0
#
# MAXNES (integer)                  - Max Number of Domains in simulation
MAXNES = 2
#
```

```
# MIX,MJX (integer)                 - Maximum Dimensions of any Domain
MIX =  241
MJX =  265
# MKX (integer)                     - Number of half sigma levels in model
MKX = 34
#-----------------------------------------------------------------------------
# 6. Physics Options
#    The first MAXNES values in the list will be used for the corresponding
#        model nests; the rest in the list can be used to compile other options.
#        The exception is FRAD, of which only the first value is used in the model,
#        (i.e., only one radiation option is used for all nests). The rest allow
#        other options to be compiled.
#    Compilation of Arakawa-Schubert cumulus scheme requires imsl.
#-----------------------------------------------------------------------------
# IMPHYS - for explicit moisture schemes (array,integer)
#
IMPHYS = "5,5,1,1,1,1,1,1,1,1"
#                                   - Dry,stable,warm rain,simple ice,mix phase,
#                                   - 1  ,2     ,3        ,4         ,5
#                                   - graupel(gsfc),graupel(reisner2),schultz
#                                   -,6            ,7                ,8
MPHYSTBL = 0
#                                   - 0=do not use look-up tables for moist
#                                     physics
#                                   - 1=use look-up tables for moist physics
#                                     (currently only simple ice and mix phase
#                                      are available)
#                                   - 2=optimized exmoisr routine (need vslib, if not
#                                       available set -DvsLIB in compile flags)
#
# ICUPA - for cumulus schemes (array,integer)
#                                   - None,Kuo,Grell,AS,FC,KF,BM,KF2 - 1,2,3,4,5,6,7,8
# SUPPOSED TO BE 8
ICUPA  = "8,8,1,1,1,1,1,1,1,1"
#
# IBLTYP - for planetary boundary layer (array,integer)
#                                   - 0=no PBL fluxes,1=bulk,2=Blackadar,
#                                     3=Burk-Thompson,4=Eta M-Y,5=MRF,
```

```
#                                     6=Gayno-Seaman,7=Pleim-Xiu
IBLTYP  = "7,7,2,2,2,2,2,2,2,1"
#
# FRAD - for atmospheric radiation (integer)
#                                   - Radiation cooling of atmosphere
#                                     0=none,1=simple,2=cloud,3=ccm2,rrtm=4
FRAD = "4,4,0,0,0"
#
# IPOLAR - (integer) for polar model used only if ISOIL=1
#                                     0=not polar (5-layer soil model)
#                                     1=polar (7-layer snow/soil model)
IPOLAR = 0
#
# ISOIL - for multi-layer soil temperature model (integer)
#                                   - 0=no,1=yes (only works with IBLTYP=2,5)
#                                     2=Noah land-surface scheme (IBLTYP=4,5 only)
#                                     3=Pleim-Xiu LSM (IBLTYP=7 only)
# USE 3 FOR PLEIM-XIU LSM
ISOIL = 3
#
# ISHALLO (array,integer)           - Shallow Convection Option
#                                     1=shallow convection,0=No shallow convection
ISHALLO  = "0,0,0,0,0,0,0,0,0,0"
#-----------------------------------------------------------------------------
# Don't touch anything below this line
#-----------------------------------------------------------------------------
.c.o:
      $(RM) $@ && \
      $(CC) -c $(CFLAGS) $*.c
.F.o:
      $(RM) $@
      $(FC) -c $(FCFLAGS) $*.F
.f.o:
      $(RM) $@
      $(FC) -c $(FCFLAGS) $*.f
```

MM5.12km.Deck (Example)

```
#!/bin/sh
#
#  Version 3 of mm5 job deck
#
#  The mm5 executable (mm5.exe) expects to find the following files
#      in the Run/ directory:
#      MMINPUT_DOMAIN1   -|
#      BDYOUT_DOMAIN1     | --> output files from Interpf
#      LOWBDY_DOMAIN1    -|
#      TERRAIN_DOMAIN[2,3..] if running nests  --> output from Terrain
#
#  If it is a restart run:
#      RESTART_DOMAIN1[,2,3..]  --> output from MM5 run: renamed from
#                                   SAVE_DOMAIN1[,2,3...]
#
#  If it is gridded FDDA run with surface analysis nudging:
#      SFCFDDA_DOMAIN1[2,3,...]
#
#  If it is observational nudging run:
#      MM5OBS_DOMAIN1[,2,3..]   --> user-created observation files
#
#  Output from a MM5 run:
#    If IFTAPE = 1
#      MMOUT_DOMAIN1[,2,3...]   --> one output for each domain
#    If IFSAVE = TRUE
#      SAVE_DOMAIN1[,2,3...]
#
#
# temp files should be accessible

umask 022

#
# Select appropriate FDDAsw if doing gridded analysis FDDA
#
```

```
DOMAINS=(1 2)

FDDAsw=yes              # gridded FDDA input switch

#
# Sections
# 1. Options for namelist ("mmlif")
# 2. Running...
#
#-----------------------------------------------------------------------------
# 1. Options for namelist ("mmlif")
#-----------------------------------------------------------------------------
#
#     The first dimension (column) of the arrays denotes the domain
#     identifier.
#           Col 1 = Domain #1, Col 2 = Dom #2, etc.
#
cat > ./Run/oparam << EOF
 &OPARAM
 ;
 ;      ************* FORECAST TIME AND TIME STEP *****************
 ;
 TIMAX  = 7200.,         ; forecast length in minutes
 TISTEP =   90.,         ; coarse domain DT in model, use 3*DX
 ;
 ;      ************** OUTPUT/RESTART OPTIONS ***************
 ;
 IFREST = .FALSE.,       ; whether this is a restart
    IXTIMR  = 600,      ; restart time in minutes
 IFSAVE = .TRUE.,       ; save data for restart
    SVLAST = .FALSE.,   ; T: only save the last file for restart
                        ; F: save multiple files
    SAVFRQ = 360.,      ; how frequently to save data (in minutes)
 IFTAPE = 1,            ; model output: 0,1
    TAPFRQ =  60.,      ; how frequently to output model results (in minutes)
    BUFFRQ =  1440.,        ; how frequently to split model output files (in minutes),
 ;                        ignored if < TAPFRQ
    INCTAP = 1,1,1,1,1,1,1,1,1,1,  ; multipliers of TAPFRQ for outputting
```

```
 IFRSFA = .FALSE.,      ; IF this is a RESTART run, AND IF FDDA is ON,
                        ; AND IF multiple input FILES are used, set this to .TRUE.
                        ; set CDATEST to the INITIAL time of the first run
 IFSKIP = .FALSE.,      ; whether to skip input files - DO NOT use this for restart
                        ; also need to set CDATEST if set to .TRUE.
    CDATEST = '2004-11-25_12:00:00', ; IF IFSKIP=.TRUE., this will be the date from which the code should
start
                                     ; IF IFRSFA=.TRUE., this will be the INITIAL date from the first model
run
 IFPRT = 0,             ; sample print out: =1, a lot of print
 PRTFRQ = 720.,         ; Print frequency for sample output (in minutes)
 MASCHK = 99999,        ; mass conservation check (KTAU or no. of time steps)
 IFTSOUT = .FALSE.,     ; output time series (default 30 points)
   TSLAT = 0.0,0.0,0.0,0.0,0.0, ; latitudes of time series points (S is negative)
   TSLON = 0.0,0.0,0.0,0.0,0.0, ; longitudes of time series points (W is negative)
 &END
EOF
cat > ./Run/lparam << EOF
 &LPARAM
 ;
 ;       1. user-chosen options I
 ;
 RADFRQ    = 15.,  ;atmospheric radiation calculation frequency (in minutes)
 IMVDIF    = 1,    ;moist vertical diffusion in clouds - 0, 1 (IBLTYP=2,5 only)
 IVQADV    = 1,    ;vertical moisture advection uses log interpolation - 0, linear - 1
 IVTADV    = 1,    ;vertical temperature advection uses theta interpolation - 0, linear - 1
 ITHADV    = 1,    ;advection of temperature uses potential temperature - 1, standard - 0
 ITPDIF    = 1,    ;sigma-diffusion using temperature - 0, sigma-diffusion using perturbation
 ;                 ;temperature - 1, z-diffusion - 2
 TDKORR    = 2,    ;temperature gradient correction for z-diffusion at ground level
 ;                 ;uses -1- ground temp, -2- one-sided difference of air temp
 ICOR3D    = 1,    ;3D Coriolis force - 0, 1
 IEXSI     = 0,    ;initial sea-ice - 0, 1(base on SST), 2(read in) (ISOIL=1 only)
 IFUPR     = 1,    ;upper radiative boundary condition - 0, 1
 LEVSLP    = 9,    ;nest level (correspond to LEVIDN) at which solar radiation starts to
                   ;account for orography
                   ;set large to switch off
                   ;only have an effect for very high resolution model domains
```

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OROSHAW   = 0,    ;include effect of orography shadowing
                  ;ONLY has an effect if LEVSLP is also set
                  ;0=no effect (default),
                  ;1=orography shadowing taken into account - NOT AVAILABLE FOR MPI RUNS
ITADVM = 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, ; 0: default - instability limiter not used
                                       ; 1: use instability limiter for temp advection
IQADVM = 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, ; 0: default - instability limiter not used
                                       ; 1: use instability limiter for QV/CLW advection
;
;       2. do not change IBOUDY
;
IBOUDY = 3, 2, 2, 2, 2, 2, 2, 2, 2, 2, ;boundary conditions
;        (fixed, time-dependent, relaxation -0,2,3)
;
;       3. keep the following 8 variables as they are
;          unless doing sensitivity runs
;
IFDRY  = 0,                            ;fake-dry run (no latent heating) - 0, 1
;                                       for IMPHYS = 2,3,4,5,6,7 (requires ICUPA = 1)
ISSTVAR= 1,                            ;varying SST in time - 1, otherwise, 0
IMOIAV = 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, ;bucket soil moisture scheme. 0 - not used,
                                       ;1 - used w/o extra input, 2 - user w/ soil m input
IZ0TOPT= 0,                            ;thermal roughness option in IBLTYP = 2,5.
                                       ;0 - old option, 1 - Garratt, 2 - Zilitinkevich
ISFMTHD= 1,                            ;method for calculation of 2m/10m diagnostics
                                       ;0 - old method, 1 - new method for stable conditions
IFSNOW = 1, 1, 1, 0, 0, 0, 0, 0, 0, 0, ;SNOW COVER EFFECTS - 0, 1, 2
;                                      ;0 - no effect, 1 - with effect, 2 - simple snow model
ISFFLX = 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, ;surface fluxes - 0, 1
ITGFLG = 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, ;surface temperature prediction - 1:yes, 3:no
ISFPAR = 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, ;surface characteristics - 0, 1
ICLOUD = 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, ;cloud effects on radiation - 0, 1
;                                       currently for IFRAD = 1,2
IEVAP  = 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, ;evap of cloud/rainwater - <0, 0, >0
;                                       (currently for IMPHYS=3,4,5 only)
ISMRD  = 2,                            ;soil moisture initialization by PX LSM:
;                                       =0, use moisture avail from LANDUSE.TBL;
;                                       =2, use soil moisture from REGRID
```

```
 ; SOIL MOISTURE NUDGING IN PLEIM/XIU AND SFC FDDA FILE?
 NUDGE = 1,
 ; 0 = INTERPOLATE FROM VEGRAC DATA 1 = READ PLANTING DATES FROM FILE; 2 = EMERGENCE DATES FROM VEGFRAC
 IFGROW = 2,
 ; Default soil layers expected as input for ISOIL 2 & 3
 ; These values reflect the BOTTOM of the soil layer available
 ;ISTLYR = 10,40,100,200,
 ;ISMLYR = 10,40,100,200,
 ;ISTLYR = 10,200,0,0,
 ;ISMLYR = 10,200,0,0,
 ; Other common layers used by EC models (for instance ERA40)
 ;ISTLYR = 7,28,100,255,
 ;ISMLYR = 7,28,100,255,
 ;
 ; Next two switches for new version of NOAH LSM (ISOIL=2)
 RDMAXALB=.FALSE.                      ;use climo maximum snow albedo (not landuse table)
 RDBRDALB=.FALSE.                      ;use monthly climo background albedo (not landuse table)
 ;
EOF
cat > ./Run/nparam << EOF
 &NPARAM
 ;
 ;      ************** NEST AND MOVING NEST OPTIONS ***************
 ;
 LEVIDN =   0,1,2,1,1,1,1,1,1,1,               ; level of nest for each domain
 NUMNC  =   1,1,2,1,1,1,1,1,1,1,               ; ID of mother domain for each nest
 NESTIX =  129, 241,   1,   1,  46,  46,  46,  46,  46,  46,  ; domain size i
 NESTJX =  165, 265,   1,   1,  61,  61,  61,  61,  61,  61,  ; domain size j
 NESTI  =    1,  20,   8,   1,   1,   1,   1,   1,   1,   1,  ; start location i
 NESTJ  =    1,  50,   9,   1,   1,   1,   1,   1,   1,   1,  ; start location i
 XSTNES =   0.,  0.,   0.,  0.,  0.,  0.,  0.,  0.,  0.,  0., ; domain initiation
 XENNES =7200.,7200.,720.,720.,720.,720.,720.,720.,720.,720.; domain termination
 IOVERW =   1,   1,   0,   0,   0,   0,   0,   0,   0,   0,  ; overwrite nest input
 ;          0=interpolate from coarse mesh (for nest domains);
 ;          1=read in domain initial conditions
 ;          2=read in nest terrain file
 IACTIV =   1,   1,   0,   0,   0,   0,   0,   0,   0,   0,  ;
 ;          in case of restart: is this domain active?
```

```
 ;
 ;      ************* MOVING NEST OPTIONS *****************
 ;
 IMOVE  =   0,   0,   0,   0,   0,   0,   0,   0,   0,   0, ; move domain 0,1
 IMOVCO =   1,   1,   1,   1,   1,   1,   1,   1,   1,   1, ; 1st move #
 ;          imovei(j,k)=L, ; I-INCREMENT MOVE (DOMAIN J, MOVE NUMBER K) IS L
 IMOVEI =   0,   0,   0,   0,   0,   0,   0,   0,   0,   0, ; I move #1
            0,   0,   0,   0,   0,   0,   0,   0,   0,   0, ; I move #2
            0,   0,   0,   0,   0,   0,   0,   0,   0,   0, ; I move #3
            0,   0,   0,   0,   0,   0,   0,   0,   0,   0, ; I move #4
            0,   0,   0,   0,   0,   0,   0,   0,   0,   0, ; I move #5
 IMOVEJ =   0,   0,   0,   0,   0,   0,   0,   0,   0,   0, ; J move #1
            0,   0,   0,   0,   0,   0,   0,   0,   0,   0, ; J move #2
            0,   0,   0,   0,   0,   0,   0,   0,   0,   0, ; J move #3
            0,   0,   0,   0,   0,   0,   0,   0,   0,   0, ; J move #4
            0,   0,   0,   0,   0,   0,   0,   0,   0,   0, ; J move #5
 IMOVET =   0,   0,   0,   0,   0,   0,   0,   0,   0,   0, ; time of move #1
            0,   0,   0,   0,   0,   0,   0,   0,   0,   0, ; time of move #2
            0,   0,   0,   0,   0,   0,   0,   0,   0,   0, ; time of move #3
            0,   0,   0,   0,   0,   0,   0,   0,   0,   0, ; time of move #4
            0,   0,   0,   0,   0,   0,   0,   0,   0,   0, ; time of move #5
 IFEED  =  3,      ; no feedback; 9-pt weighted average; 1-pt feedback w/o smoothing /
                   ; light smoothing / heavy smoothing - 0,1,2,3, and 4
 &END
EOF
cat > ./Run/pparam << EOF
 &PPARAM
 ;
 ;      ************* MISCELLANEOUS OPTIONS *****************
 ;
 ; The values for the following 5 variables are only used if ISFPAR = 0
 ;     (i.e. only land/water surface catagories)
 ;
 ZZLND  = 0.1,          ; roughness length over land in meters
 ZZWTR  = 0.0001,       ; roughness length over water in meters
 ALBLND = 0.15,         ; albedo
 THINLD = 0.04,         ; surface thermal inertia
 XMAVA  = 0.3,          ; moisture availability over land as a decimal fraction of one
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 ;
 CONF   = 1.0,          ; non-convective precipitation saturation threshold (=1: 100%)
 &END
EOF
cat > ./Run/fparam << EOF
 &FPARAM
 ;
 ;      ************* 4DDA OPTIONS *********************
 ;
 ;     THE FIRST DIMENSION (COLUMN) IS THE DOMAIN IDENTIFIER:
 ;         COLUMN 1 = DOMAIN #1, COLUMN 2 = DOMAIN #2, ETC.
 ;
 ;       START TIME FOR FDDA (ANALYSIS OR OBS) FOR EACH DOMAIN
 ;       (IN MINUTES RELATIVE TO MODEL INITIAL TIME)
 FDASTA=0.,0.,0.,0.,0.,0.,0.,0.,0.,0.
 ;       ENDING TIME FOR FDDA (ANALYSIS OR OBS) FOR EACH DOMAIN
 ;       (IN MINUTES RELATIVE TO MODEL INITIAL TIME)
 FDAEND=7200.,7200.,0.,0.,0.,0.,0.,0.,0.,0.,
 ;
 ;      **************** ANALYSIS NUDGING ******************
 ;
 ;     THE FIRST DIMENSION (COLUMN) OF THE ARRAYS DENOTES THE
 ;     DOMAIN IDENTIFIER:
 ;         COLUMN 1 = DOMAIN #1, COLUMN 2 = DOMAIN #2, ETC.
 ;     THE SECOND DIMENSION (ROW OR LINE) EITHER REFERS TO THE 3D VS
 ;     SFC ANALYSIS OR WHICH VARIABLE IS ACCESSED:
 ;         LINE 1 = 3D, LINE 2 = SFC   OR
 ;         LINE 1 = U, LINE 2 = V, LINE 3 = T, LINE 4 = Q
 ;
 ;       IS THIS A GRID 4DDA RUN? 0 = NO; 1 = YES
 I4D= 1,1,0,0,0,0,0,0,0,0,
      1,1,0,0,0,0,0,0,0,0,
 ;
 ;       SPECIFY THE TIME IN MINUTES BETWEEN THE INPUT (USUALLY
 ;       FROM INTERP) USED FOR GRID FDDA
 DIFTIM=180.,180.,0.,0.,0.,0.,0.,0.,0.,0.,      ; 3D ANALYSIS NUDGING
        180.,180.,0.,0.,0.,0.,0.,0.,0.,0.,      ; SFC ANALYSIS NUDGING
 ;
```

```
 ;       GRID NUDGE THE WIND FIELD? 0 = NO; 1 = YES
 IWIND=1,1,0,0,0,0,0,0,0,0,    ; 3D ANALYSIS NUDGING
       1,1,0,0,0,0,0,0,0,0,    ; SFC ANALYSIS NUDGING
 ;
 ;       NUDGING COEFFICIENT FOR WINDS ANALYSES
 GV=2.5E-4,1.0E-4,0.,0.,0.,0.,0.,0.,0.,0.,       ; 3D ANALYSIS NUDGING
    2.5E-4,1.0E-4,0.,0.,0.,0.,0.,0.,0.,0.,       ; SFC ANALYSIS NUDGING
 ;
 ;       GRID NUDGE THE TEMPERATURE FIELD? 0 = NO; 1 = YES
 ITEMP=1,1,0,0,0,0,0,0,0,0,    ; 3D ANALYSIS NUDGING
       1,1,0,0,0,0,0,0,0,0,    ; SFC ANALYSIS NUDGING
 ;
 ;       NUDGING COEFFICIENT FOR TEMPERATURE ANALYSES
 GT=2.5E-4,1.0E-4,0.,0.,0.,0.,0.,0.,0.,0.,       ; 3D ANALYSIS NUDGING
    2.5E-4,1.0E-4,0.,0.,0.,0.,0.,0.,0.,0.,       ; SFC ANALYSIS NUDGING
 ;
 IMOIS=1,1,0,0,0,0,0,0,0,0,    ; 3D ANALYSIS NUDGING
       1,1,0,0,0,0,0,0,0,0,    ; SFC ANALYSIS NUDGING
 ;
 ;       NUDGING COEFFICIENT FOR THE MIXING RATIO ANALYSES
 GQ=1.E-5,1.E-5,0.,0.,0.,0.,0.,0.,0.,0.,        ; 3D ANALYSIS NUDGING
    1.E-5,1.E-5,0.,0.,0.,0.,0.,0.,0.,0.,        ; SFC ANALYSIS NUDGING
 ;
 ;       GRID NUDGE THE ROTATIONAL WIND FIELD? 0 = NO; 1 = YES
 IROT=0,0,0,0,0,0,0,0,0,0,     ; 3D ANALYSIS NUDGING
;
 ;       NUDGING COEFFICIENT FOR THE ROTATIONAL COMPONENT OF THE WINDS
 GR=5.E6,5.E6,0.,0.,0.,0.,0.,0.,0.,0.,          ; 3D ANALYSIS NUDGING
 ;
 ;        IF GRID NUDGING (I4D(1,1)=1) AND YOU WISH TO EXCLUDE THE
 ;        BOUNDARY LAYER FROM FDDA OF COARSE GRID THREE DIMENSIONAL
 ;        DATA (USUALLY FROM INTERP),
 ;             0 = NO,  INCLUDE BOUNDARY LAYER NUDGING
 ;             1 = YES, EXCLUDE BOUNDARY LAYER NUDGING
 INONBL =0,0,0,0,0,0,0,0,0,0,         ; U WIND
        0,0,0,0,0,0,0,0,0,0,         ; V WIND
        1,1,1,1,1,1,1,1,1,1,         ; TEMPERATURE
        1,1,1,1,1,1,1,1,1,1,         ; MIXING RATIO
```

```
;
;        RADIUS OF INFLUENCE FOR SURFACE ANALYSIS (KM).
;        IF I4D(2,1)=1 OR I4D(2,2)=1, ETC, DEFINE RINBLW (KM) USED
;        IN SUBROUTINE BLW TO DETERMINE THE HORIZONTAL VARIABILITY
;        OF THE SURFACE-ANALYSIS NUDGING AS A FUNCTION OF SURFACE
;        DATA DENSITY.  OVER LAND, THE STRENGTH OF THE SURFACE-
;        ANALYSIS NUDGING IS LINEARLY DECREASED BY 80 PERCENT AT
;        THOSE GRID POINTS GREATER THAN RINBLW FROM AN OBSERVATION
;        TO ACCOUNT FOR DECREASED CONFIDENCE IN THE ANALYSIS
;        IN REGIONS NOT NEAR ANY OBSERVATIONS.
RINBLW=51.,
;
;        SET THE NUDGING PRINT FREQUENCY FOR SELECTED DIAGNOSTIC
;        PRINTS IN THE GRID (ANALYSIS) NUDGING CODE (IN CGM
;        TIMESTEPS)
NPFG=50,
;      **************** OBSERVATION NUDGING ***************
;
;
;     INDIVIDUAL OBSERVATION NUDGING.  VARIABLES THAT ARE ARRAYS
;     USE THE FIRST DIMENSION (COLUMN) AS THE DOMAIN IDENTIFIER:
;         COLUMN 1 = DOMAIN #1, COLUMN 2 = DOMAIN #2, ETC.
;
;       IS THIS INDIVIDUAL OBSERVATION NUDGING? 0 = NO; 1 = YES
I4DI   =0,0,0,0,0,0,0,0,0,0,
;
;       OBS NUDGE THE WIND FIELD FROM STATION DATA? 0 = NO; 1 = YES
ISWIND =1,0,0,0,0,0,0,0,0,0,
;
;       NUDGING COEFFICIENT FOR WINDS FROM STATION DATA
GIV  =4.E-4,4.E-4,0.,0.,0.,0.,0.,0.,0.,0.,
;
;       OBS NUDGE THE TEMPERATURE FIELD FROM STATION DATA? 0 = NO; 1 = YES
ISTEMP=1,0,0,0,0,0,0,0,0,0,
;
;       NUDGING COEFFICIENT FOR TEMPERATURES FROM STATION DATA
GIT  =4.E-4,4.E-4,0.,0.,0.,0.,0.,0.,0.,0.,
```

```
;
;       OBS NUDGE THE MIXING RATIO FIELD FROM STATION DATA? 0 = NO; 1 = YES
ISMOIS=1,0,0,0,0,0,0,0,0,0,
;
;       NUDGING COEFFICIENT FOR THE MIXING RATIO FROM STATION DATA
GIQ  =4.E-4,4.E-4,0.,0.,0.,0.,0.,0.,0.,0.,
;
;       THE OBS NUDGING RADIUS OF INFLUENCE IN THE
;       HORIZONTAL IN KM FOR CRESSMAN-TYPE DISTANCE-WEIGHTED
;       FUNCTIONS WHICH SPREAD THE OBS-NUDGING CORRECTION
;       IN THE HORIZONTAL.
RINXY=240.,
;
;       THE OBS NUDGING RADIUS OF INFLUENCE IN THE
;       VERTICAL IN SIGMA UNITS FOR CRESSMAN-TYPE DISTANCE-
;       WEIGHTED FUNCTIONS WHICH SPREAD THE OBS-NUDGING
;       CORRECTION IN THE VERTICAL.
RINSIG=0.001,
;
;       THE HALF-PERIOD OF THE TIME WINDOW, IN MINUTES, OVER
;       WHICH AN OBSERVATION WILL AFFECT THE FORECAST VIA OBS
;       NUDGING. THAT IS, THE OBS WILL INFLUENCE THE FORECAST
;       FROM TIMEOBS-TWINDO TO TIMEOBS+TWINDO.  THE TEMPORAL
;       WEIGHTING FUNCTION IS DEFINED SUCH THAT THE OBSERVATION
;       IS APPLIED WITH FULL STRENGTH WITHIN TWINDO/2. MINUTES
;       BEFORE OR AFTER THE OBSERVATION TIME, AND THEN LINEARLY
;       DECREASES TO ZERO TWINDO MINUTES BEFORE OR AFTER THE
;       OBSERVATION TIME.
TWINDO=40.0,
;
;       THE NUDGING PRINT FREQUENCY FOR SELECTED DIAGNOSTIC PRINT
;       IN THE OBS NUDGING CODE (IN CGM TIMESTEPS)
NPFI=20,
;
;       FREQUENCY (IN CGM TIMESTEPS) TO COMPUTE OBS NUDGING WEIGHTS
IONF=2,
IDYNIN=0,  ;for dynamic initialization using a ramp-down function to gradually
;           turn off the FDDA before the pure forecast, set idynin=1 [y=1, n=0]
```

```
 DTRAMP=60.,;the time period in minutes over which the
 ;           nudging (obs nudging and analysis nudging) is ramped down
 ;           from one to zero.  Set dtramp negative if FDDA is to be ramped
 ;           down BEFORE the end-of-data time (DATEND), and positive if the
 ;           FDDA ramp-down period extends beyond the end-of-data time.
 &END
EOF
#
#-----------------------------------------------------------------
#
#      create namelist: mmlif, and remove comments from namelist:
#
make mmlif
cd ./Run
sed -f ../Util/no_comment.sed mmlif | grep [A-Z,a-z] > mmlif.tmp
mv mmlif.tmp mmlif
rm fparam lparam nparam oparam pparam
#
#       copy gridded FDDA files
#


rm -f TERRAIN_DOMAIN*
rm -f SFCFDDA_DOMAIN*
rm -f MMINPUT_DOMAIN*
rm -f MMINPUT2_DOMAIN*
rm -f LOWBDY_DOMAIN*
rm -f BDYOUT_DOMAIN*

for i in ${DOMAINS[*]}
do
     ln -s ../../TERRAIN/TERRAIN_DOMAIN${i} TERRAIN_DOMAIN${i}
     ln -s ../../INTERPF/MMINPUT_DOMAIN${i} MMINPUT_DOMAIN${i}
     ln -s ../../INTERPF/LOWBDY_DOMAIN${i} LOWBDY_DOMAIN${i}
     ln -s ../../INTERPF/BDYOUT_DOMAIN${i} BDYOUT_DOMAIN${i}
     if [ $FDDAsw = yes ]; then
          ln -s ../../LITTLE_R/SFCFDDA_DOMAIN${i} SFCFDDA_DOMAIN${i}
          ln -s ../../INTERPF/MMINPUT_DOMAIN${i} MMINPUT2_DOMAIN${i}
```

```
     fi

done

#if [ $FDDAsw = yes ]; then
#   echo "Copy grid fdda file"
#   for i in MMINPUT_DOMAIN[1-9]
#   do
#     Num=`echo $i | grep [1-9]$ | sed 's/.*\(.\)/\1/'`
#     ln -s $i MMINPUT2_DOMAIN$Num
#     echo "cp $i MMINPUT2_DOMAIN$Num"
#   done
#fi
#
#-----------------------------------------------------------------
#
#       run MM5
#
date
echo "time mm5.exe >! mm5.print.out "
time ./mm5.exe > mm5.print.out 2>&1
```

MATS

2002 Design Values Calculations

Quarter	Granite City Site			East St. Louis			2nd & Mound		
	2000-2002	2001-2003	2002-2004	2000-2002	2001-2003	2002-2004	2000-2002	2001-2003	2002-2004
20000101	18.26			16.86			15.73		
20000401	15.24			14.04			12.87		
20000701	18.22			19.99			18.04		
20001001	17.69			18.79			17.39		
20010101	20.36	20.36		21.22	21.22		18.09	18.09	
20010401	14.80	14.80		15.98	15.98		14.48	14.48	
20010701	16.91	16.91		17.15	17.15		16.34	16.34	
20011001	17.08	17.08		13.67	13.67		12.77	12.77	
20020101	16.49	16.49	16.49	13.93	13.93	13.93	12.97	12.97	12.97
20020401	16.56	16.56	16.56	15.01	15.01	15.01	13.96	13.96	13.96
20020701	21.66	21.66	21.66	21.68	21.68	21.68	20.54	20.54	20.54
20021001	16.13	16.13	16.13	15.98	15.98	15.98	14.83	14.83	14.83
20030101		16.03	16.03		14.24	14.24		15.44	15.44
20030401		15.75	15.75		14.59	14.59		14.71	14.71
20030701		20.93	20.93		18.23	18.23		16.49	16.49
20031001		17.34	17.34		12.34	12.34		12.02	12.02
20040101			14.29			14.52			13.93
20040401			14.93			13.92			12.57
20040701			18.60			16.98			16.28
20041001			13.71			13.36			11.50
Average	**17.45**	**17.50**	**16.87**	**17.03**	**16.17**	**15.40**	**15.67**	**15.22**	**14.60**
Weighted Average*	**17.27**			**16.19**			**15.16**		

*All Weighted Averages are truncated

Quarter	Ferguson	Alton	Wood River

	2000-2002	2001-2003	2002-2004	2000-2002	2001-2003	2002-2004	2000-2002	2001-2003	2002-2004
20000101	15.45			15.89			15.87		
20000401	11.31			13.79			13.93		
20000701	16.85			18.73			18.00		
20001001	14.23			15.61			15.84		
20010101	16.16	16.16		17.85	17.85		16.98	16.98	
20010401	12.94	12.94		14.96	14.96		14.09	14.09	
20010701	14.68	14.68		15.89	15.89		15.78	15.78	
20011001	9.90	9.90		14.51	14.51		12.94	12.94	
20020101	11.38	11.38	11.38	13.37	13.37	13.37	14.03	14.03	14.03
20020401	12.30	12.30	12.30	13.93	13.93	13.93	14.41	14.41	14.41
20020701	18.22	18.22	18.22	18.68	18.68	18.68	19.16	19.16	19.16
20021001	11.85	11.85	11.85	12.82	12.82	12.82	12.90	12.90	12.90
20030101		12.33	12.33		14.06	14.06		14.10	14.10
20030401		12.73	12.73		12.67	12.67		13.55	13.55
20030701		-9.00	-9.00		18.16	18.16		17.13	17.13
20031001		-9.00	-9.00		11.24	11.24		11.16	11.16
20040101			-9.00			11.60			11.56
20040401			-9.00			9.86			13.14
20040701			-9.00			13.12			14.92
20041001			-9.00			11.46			13.19
Average	**13.77**	**NA**	**NA**	**15.50**	**14.84**	**13.41**	**15.33**	**14.68**	**14.10**
Weighted Average*	**13.77**			**14.58**			**14.70**		

*All Weighted Averages are truncated

Quarter	Swansea			Arnold			West Alton		
	2000-2002	2001-2003	2002-2004	2000-2002	2001-2003	2002-2004	2000-2002	2001-2003	2002-2004
20000101	15.11			14.15			15.48		
20000401	12.20			12.59			12.28		
20000701	16.03			18.71			16.82		

20001001	16.70			15.52			14.50		
20010101	19.43	19.43		17.87	17.87		19.49	19.49	
20010401	15.41	15.41		14.17	14.17		13.83	13.83	
20010701	15.44	15.44		15.18	15.18		15.29	15.29	
20011001	11.61	11.61		10.78	10.78		11.27	11.27	
20020101	13.28	13.28	13.28	13.29	13.29	13.29	12.10	12.10	12.10
20020401	12.81	12.81	12.81	13.96	13.96	13.96	13.05	13.05	13.05
20020701	19.89	19.89	19.89	19.68	19.68	19.68	18.49	18.49	18.49
20021001	14.33	14.33	14.33	13.28	13.28	13.28	12.53	12.53	12.53
20030101		13.31	13.31		14.32	14.32		13.98	13.98
20030401		13.22	13.22		13.92	13.92		13.76	13.76
20030701		17.20	17.20		15.97	15.97		16.81	16.81
20031001		13.33	13.33		11.68	11.68		11.55	11.55
20040101			13.26			12.54			12.07
20040401			12.52			11.85			10.85
20040701			15.03			15.07			13.98
20041001			12.10			10.81			10.67
Average	**15.19**	**NA**	**14.19**	**14.93**	**14.51**	**13.86**	**14.59**	**14.34**	**13.32**
Weighted Average*	**14.68**			**14.43**			**14.08**		

*All Weighted Averages are truncated

Quarter	**Sunset Hills**			**Clayton**			**S. Broadway**		
	2000-2002	**2001-2003**	**2002-2004**	**2000-2002**	**2001-2003**	**2002-2004**	**2000-2002**	**2001-2003**	**2002-2004**
20000101	-9.00			16.92			13.87		
20000401	-9.00			11.46			12.53		
20000701	-9.00			16.96			17.45		
20001001	-9.00			15.10			17.39		
20010101	-9.00	-9.00		16.70	16.70		17.41	17.41	
20010401	13.74	13.74		13.24	13.24		13.93	13.93	
20010701	13.82	13.82		14.35	14.35		15.86	15.86	

20011001	9.55	9.55		11.42	11.42		12.10	12.10	
20020101	11.23	11.23	11.23	13.25	13.25	13.25	12.84	12.84	12.84
20020401	11.83	11.83	11.83	12.79	12.79	12.79	13.66	13.66	13.66
20020701	17.49	17.49	17.49	18.27	18.27	18.27	20.37	20.37	20.37
20021001	11.62	11.62	11.62	13.98	13.98	13.98	14.37	14.37	14.37
20030101		12.19	12.19		14.00	14.00		14.97	14.97
20030401		12.85	12.85		13.02	13.02		14.24	14.24
20030701		16.67	16.67		15.80	15.80		16.41	16.41
20031001		10.09	10.09		11.72	11.72		12.02	12.02
20040101			11.48			12.85			13.35
20040401			9.88			10.95			12.02
20040701			14.27			14.05			15.20
20041001			10.74			11.13			11.79
Average	**NA**	**NA**	**12.53**	**14.54**	**14.05**	**13.48**	**NA**	**14.85**	**14.27**
Weighted Average*	**12.52**			**14.02**			**14.55**		

*All Weighted Averages are truncated

Quarter	**Blair St.**			**Tilden City**			**Margaretta**		
	2000-2002	**2001-2003**	**2002-2004**	**2000-2002**	**2001-2003**	**2002-2004**	**2000-2002**	**2001-2003**	**2002-2004**
20000101	16.48			14.51			14.97		
20000401	13.02			13.48			12.25		
20000701	18.38			18.47			16.85		
20001001	17.72			14.21			16.56		
20010101	17.61	17.61		13.68	13.68		16.11	16.11	
20010401	14.41	14.41		11.89	11.89		13.53	13.53	
20010701	16.63	16.63		12.52	12.52		16.02	16.02	
20011001	12.30	12.30		10.26	10.26		11.17	11.17	
20020101	12.78	12.78	12.78	9.29	9.29	9.29	11.69	11.69	11.69
20020401	13.83	13.83	13.83	10.73	10.73	10.73	12.64	12.64	12.64
20020701	20.36	20.36	20.36	15.37	15.37	15.37	19.38	19.38	19.38

20021001	14.57	14.57	14.57	10.84	10.84	10.84	13.44	13.44	13.44
20030101		14.65	14.65		16.19	16.19		13.69	13.69
20030401		13.88	13.88		14.68	14.68		13.22	13.22
20030701		16.25	16.25		13.84	13.84		15.63	15.63
20031001		11.71	11.71		9.05	9.05		11.29	11.29
20040101			13.73			11.04			12.31
20040401			11.83			9.91			10.96
20040701			15.33			13.85			14.30
20041001			11.80			8.74			10.86
Average	**15.67**	**14.91**	**14.23**	**12.94**	**12.36**	**11.96**	**14.55**	**13.98**	**13.28**
Weighted Average*	**14.93**			**12.41**			**13.93**		

*All Weighted Averages are truncated

MATS input screens

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Ozone Analysis

Visibility Analysis

Annual PM Analysis

Quarterly PM Analysis

- Choose Desired Output
- Output Choices - Advanced
- **Data Input**
- Species Fractions Options
- Species Fractions - Advanced
- PM2.5 Calculation Options
- Model Data Options
- Final Output and Check

Data Input

Species Data

(•) Species Monitor Data File — C:\Program Files\Abt Associates\MATS\SampleData\Species-f

( ) Species Fractions File

PM2.5 Monitor Data

Unofficial Daily Average PM2.5 Data File (for Species Fractions _PM2.5 Calculations)

C:\Program Files\Abt Associates\MATS\SampleData\PM25-for-fractions-0004-v2.csv

Official Quarterly Average FRM Data File (for PM2.5 Point Calculations)

C:\Program Files\Abt Associates\MATS\SampleData\Annual-official-FRM-99-06-v1.csv

Model Data

( ) Quarterly model data input (•) Daily model data input

Baseline File: D:\mats\StLouis_CMAQ_2002base5b_NationalSteel_new_dvNZ_12km_128x149.csv

Forecast File: D:\mats\StLouis_CMAQ_2012base5b_RACT-final-7facilities.NationalSteel_new_dvNZ_12km_128x149.cs

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- **Species Fractions Options**
- Species Fractions - Advanced
- PM2.5 Calculation Options
- Model Data Options
- Final Output and Check

Species Fractions Calculation Options

IMPROVE-STN Monitor Data

Monitor Data Years

Start Year: 2002 End Year: 2004

Delete Specified Data Values

☑ EPA-specified deletions from monitor data

☐ User-specified deletions from monitor data

Minimum Data Requirements

Minimum number of valid days per quarter: 11

Minimum number of valid years required for valid season: 1

Minimum number of valid seasons for valid monitor: 1

PM2.5 Monitor Data

Monitor Data Years

Start Year: 2002 End Year: 2004

Delete Specified Data Values

☑ EPA-specified deletions from monitor data

☐ User-specified deletions from monitor data

Minimum Data Requirements

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Visibility Analysis

Annual PM Analysis

Quarterly PM Analysis

- Choose Desired Output
- Output Choices - Advanced
- Data Input
- Species Fractions Options
- **Species Fractions - Advanced**
- PM2.5 Calculation Options
- Model Data Options
- Final Output and Check

Species Fractions Calculation Options - Advanced

Interpolation Options

PM2.5	Inverse Distance Squared V	90000	Crustal	Inverse Distance Squared V	90000
SO4	Inverse Distance Squared V	90000	DON	Inverse Distance Squared V	90000
NOx	Inverse Distance Squared V	90000	OC	Inverse Distance Squared V	90000
EC	Inverse Distance Squared V	90000	NH4	Inverse Distance Squared V	90000
Salt	Inverse Distance Squared V	90000			

Miscellaneous Options

Ammonium

- (•) Use DON values
- ( ) Use measured ammonium

NH4 percentage evaporating (0-100) 0

Default Blank Mass

Default Blank Mass 0.5

Organic Carbon

Organic carbon mass balance floor 1

Organic carbon mass balance ceiling 0.8

NH4 future calculation

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Ozone Analysis

Visibility Analysis

Annual PM Analysis

Quarterly PM Analysis

- Choose Desired Output
- Output Choices - Advanced
- Data Input
- Species Fractions Options
- Species Fractions - Advanced
- **PM2.5 Calculation Options**
- Model Data Options
- Final Output and Check

PM2.5 Calculation Options

PM2.5 Monitor Data Years

Start Year 2000 End Year 2004

(•) Official Design Values
( ) Custom Design Values

Valid FRM Quarters

Minimum days for valid quarter 11

Valid FRM Design Values

Minimum valid quarters in design value period 12

Valid FRM Monitors

Minimum Number of Design Values 1

Required Design Values None selected

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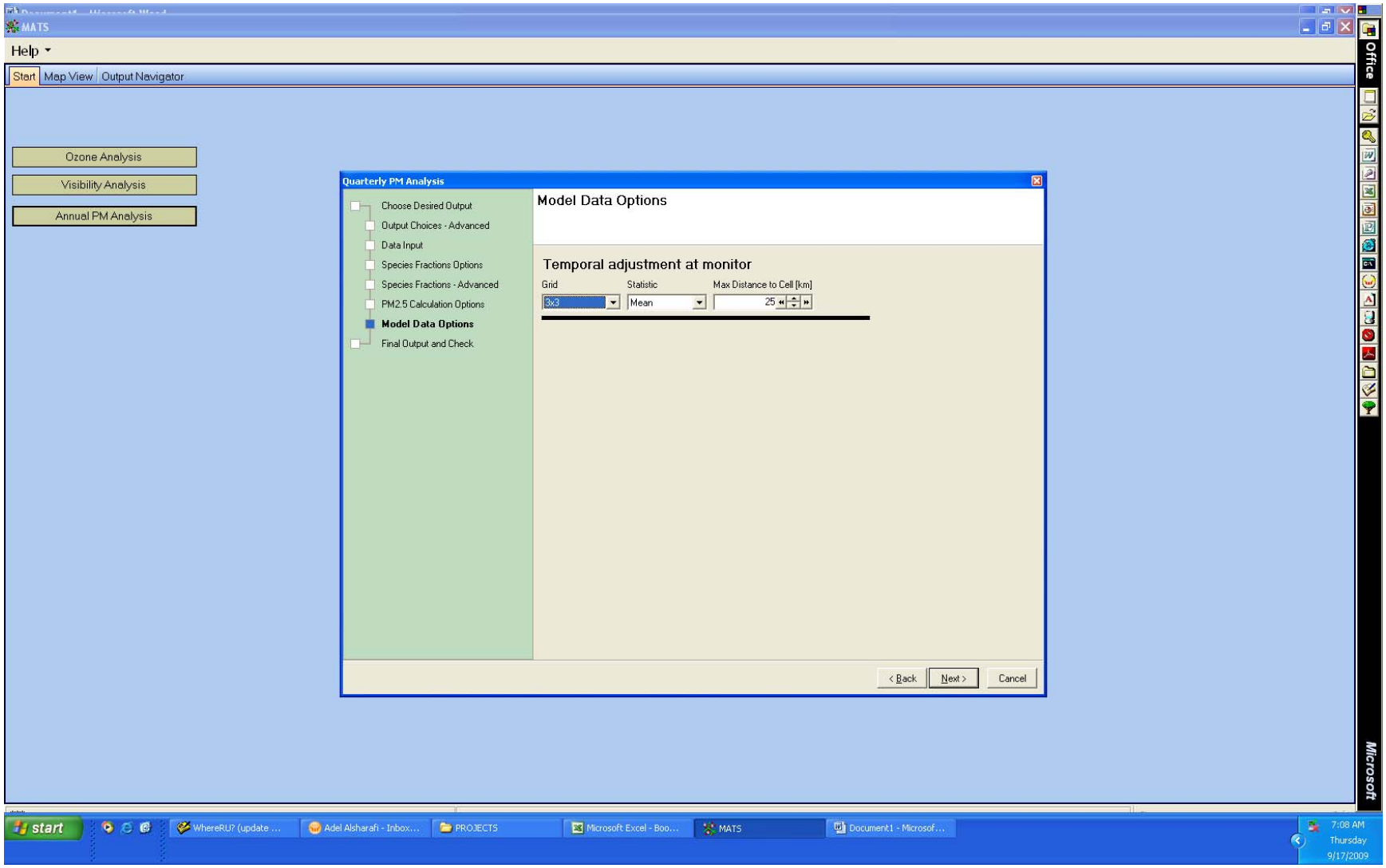
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Species Fractions - Advanced
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Model Data Options
Final Output and Check
Model Data Options
Temporal adjustment at monitor
Grid
Statistic
Max Distance to Cell [km]
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Mean
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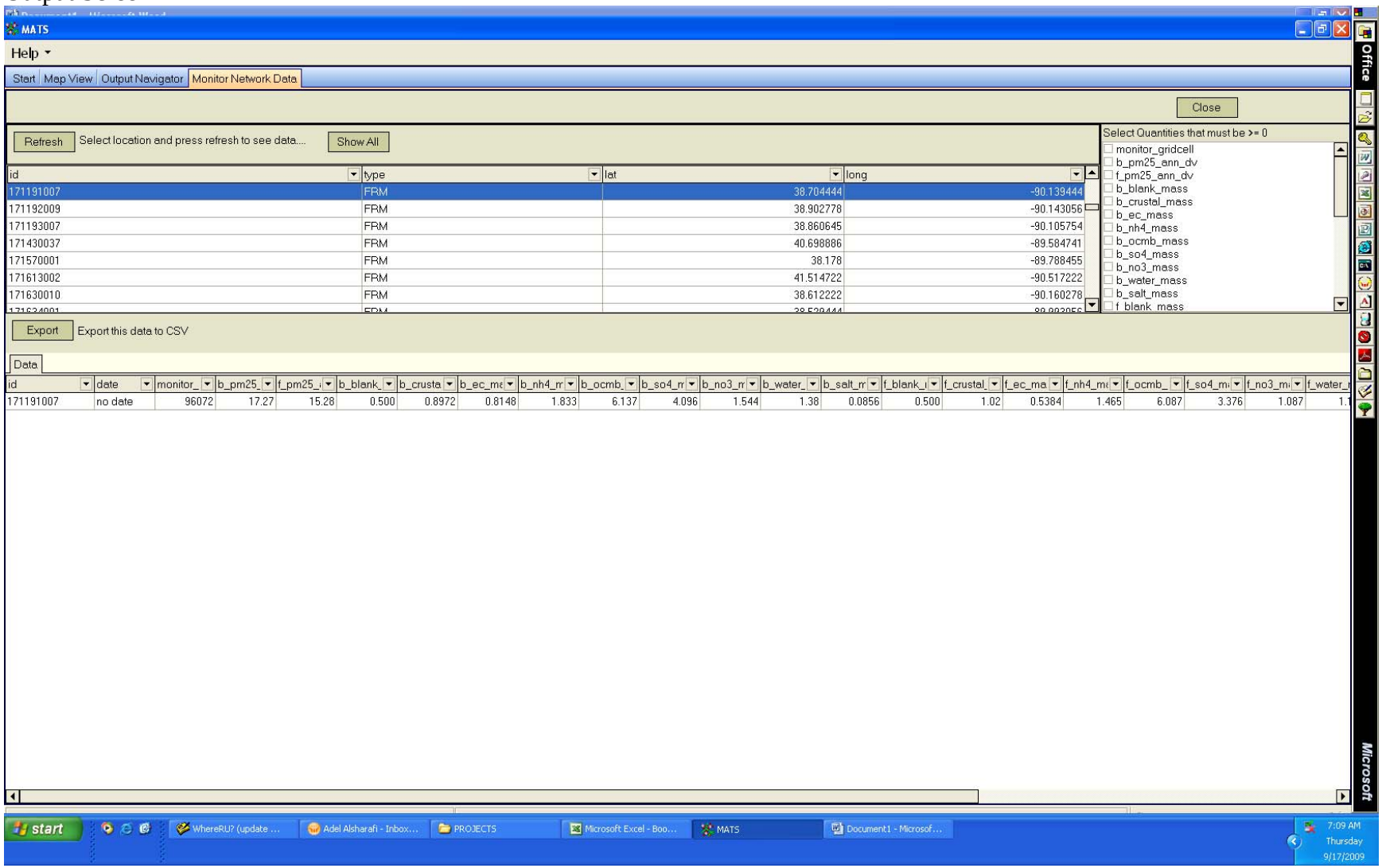
Output Screen



SMOKE SCRIPTS

ASSIGN FILE

```
#/bin/csh -fx
#
## HEADER ##########################################################
#
#  SMOKE ASSIGNS file (sets up for area, biogenic, mobile, nonroad, and point sources)
#
#  Version @(#)$Id: ASSIGNS.nctox.cmaq.cb4p25_wtox.us36-nc,v 1.6 2004/08/17 14:45:47 cseppan Exp $
#  Path    $Source: /afs/isis/depts/cep/emc/apps/archive/smoke/smoke/assigns/ASSIGNS.nctox.cmaq.cb4p25_wtox.us36-nc,v $
#  Date    $Date: 2004/08/17 14:45:47 $
#
#  Scenario Description:
#     This assigns file sets up the environment variables for use of
#     SMOKE Version 2.1 outside of the Models-3 system.
#
#  Base 2 CENRAP inventory for CAMX for July 2-16 episode, 12km grid
#  Point sources (running every day in episode)
#
## I/O Naming roots
#
   setenv EDSS_ROOT  /smoke/edss
   setenv NEST N
   setenv RESO 36

   setenv INVID     b5cmaq_ptne        # Inventory input identifier
   setenv INVOP     b5cmaq_ptne       # Base year inventory output name
   setenv INVEN     b5cmaq_ptne       # Base year inventory name with version

   setenv ABASE     b5cmaq_ptne       # Area base case output name
   setenv BBASE     b5cmaq_ptne         # Biogenics base case output name
   setenv MBASE     b5cmaq_ptne       # Mobile base case output name
   setenv PBASE     b5cmaq_ptne       # Point base case output name

   setenv EBASE     b5cmaq_ptne       # Output merged base case name

   setenv METSCEN      12km              # Met scenario name
```

```
   setenv GRID         12km128x149          # Gridding root for naming
   setenv IOAPI_GRIDNAME_1 stl12km128x149 # Grid selected from GRIDDESC file
   setenv IOAPI_ISPH   19               # Specifies spheroid type associated with grid
   setenv SPC          cmaq.cb4p25      # Speciation type

if ($MONTH == jan ) then
   setenv SEASON win
   setenv QUART Q1
## Mobile episode variables
   setenv EPI_STDATE 2002025     # Julian start date
   setenv EPI_STTIME  000000     # start time (HHMMSS)
   setenv EPI_RUNLEN 0960000     # run length (HHHMMSS)
   setenv EPI_NDAY   4           # number of full run days

## Per-period environment variables
   setenv G_STDATE  2002025      # Julian start date
   setenv G_STTIME   000000      # start time (HHMMSS)
   setenv G_TSTEP     10000      # time step  (HHMMSS)
   setenv G_RUNLEN   0250000      # run length (HHHHMMSS)
   setenv ESDATE   20020125      # Start date of emis time-based files/dirs
   setenv MSDATE   20020125      # Start date of met  time-based files
   setenv NDAYS           1      # Duration in days of each emissions file
   setenv MDAYS           1      # Duration in days of met  time-based files
   setenv YEAR         2002      # Base year for year-specific files
endif
if ($MONTH == feb ) then
   setenv SEASON win
   setenv QUART Q1
## Mobile episode variables
   setenv EPI_STDATE 2002039     # Julian start date
   setenv EPI_STTIME  000000     # start time (HHMMSS)
   setenv EPI_RUNLEN 0960000     # run length (HHHMMSS)
   setenv EPI_NDAY   4           # number of full run days

## Per-period environment variables
   setenv G_STDATE  2002039      # Julian start date
   setenv G_STTIME   000000      # start time (HHMMSS)
   setenv G_TSTEP     10000      # time step  (HHMMSS)
   setenv G_RUNLEN   0250000      # run length (HHHHMMSS)
   setenv ESDATE   20020208      # Start date of emis time-based files/dirs
   setenv MSDATE   20020208      # Start date of met  time-based files
   setenv NDAYS           1      # Duration in days of each emissions file
```

```
   setenv MDAYS           1      # Duration in days of met  time-based files
   setenv YEAR         2002      # Base year for year-specific files
endif
if ($MONTH == mar ) then
   setenv SEASON win
   setenv QUART Q1
## Mobile episode variables
   setenv EPI_STDATE 2002074     # Julian start date
   setenv EPI_STTIME  000000     # start time (HHMMSS)
   setenv EPI_RUNLEN 0960000     # run length (HHHMMSS)
   setenv EPI_NDAY   4           # number of full run days

## Per-period environment variables
   setenv G_STDATE  2002074      # Julian start date
   setenv G_STTIME   000000      # start time (HHMMSS)
   setenv G_TSTEP     10000      # time step  (HHMMSS)
   setenv G_RUNLEN   0250000      # run length (HHHHMMSS)
   setenv ESDATE   20020315      # Start date of emis time-based files/dirs
   setenv MSDATE   20020315      # Start date of met  time-based files
   setenv NDAYS           1      # Duration in days of each emissions file
   setenv MDAYS           1      # Duration in days of met  time-based files
   setenv YEAR         2002      # Base year for year-specific files
endif
if ($MONTH == apr ) then
   setenv SEASON sum
   setenv QUART Q2
## Mobile episode variables
   setenv EPI_STDATE 2002102     # Julian start date
   setenv EPI_STTIME  000000     # start time (HHMMSS)
   setenv EPI_RUNLEN 0960000     # run length (HHHMMSS)
   setenv EPI_NDAY   4           # number of full run days

## Per-period environment variables
   setenv G_STDATE  2002102      # Julian start date
   setenv G_STTIME   000000      # start time (HHMMSS)
   setenv G_TSTEP     10000      # time step  (HHMMSS)
   setenv G_RUNLEN   0250000      # run length (HHHHMMSS)
   setenv ESDATE   20020412      # Start date of emis time-based files/dirs
   setenv MSDATE   20020412      # Start date of met  time-based files
   setenv NDAYS           1      # Duration in days of each emissions file
   setenv MDAYS           1      # Duration in days of met  time-based files
   setenv YEAR         2002      # Base year for year-specific files
```

```
endif
if( $MONTH == may ) then
   setenv SEASON sum
   setenv QUART Q2
## Mobile episode variables
   setenv EPI_STDATE 2002137     # Julian start date
   setenv EPI_STTIME  000000     # start time (HHMMSS)
   setenv EPI_RUNLEN 0960000     # run length (HHHMMSS)
   setenv EPI_NDAY   4           # number of full run days

## Per-period environment variables
   setenv G_STDATE  2002137      # Julian start date
   setenv G_STTIME   000000      # start time (HHMMSS)
   setenv G_TSTEP     10000      # time step  (HHMMSS)
   setenv G_RUNLEN   0250000      # run length (HHHHMMSS)
   setenv ESDATE   20020517      # Start date of emis time-based files/dirs
   setenv MSDATE   20020517      # Start date of met  time-based files
   setenv NDAYS           1      # Duration in days of each emissions file
   setenv MDAYS           1      # Duration in days of met  time-based files
   setenv YEAR         2002      # Base year for year-specific files
endif
if ($MONTH == jun ) then
   setenv SEASON sum
   setenv QUART Q2
## Mobile episode variables
   setenv EPI_STDATE 2002165     # Julian start date
   setenv EPI_STTIME  000000     # start time (HHMMSS)
   setenv EPI_RUNLEN 0960000     # run length (HHHMMSS)
   setenv EPI_NDAY   4           # number of full run days

## Per-period environment variables
   setenv G_STDATE  2002165      # Julian start date
   setenv G_STTIME   000000      # start time (HHMMSS)
   setenv G_TSTEP     10000      # time step  (HHMMSS)
   setenv G_RUNLEN   0250000      # run length (HHHHMMSS)
   setenv ESDATE   20020614      # Start date of emis time-based files/dirs
   setenv MSDATE   20020614      # Start date of met  time-based files
   setenv NDAYS           1      # Duration in days of each emissions file
   setenv MDAYS           1      # Duration in days of met  time-based files
   setenv YEAR         2002      # Base year for year-specific files
endif
if ($MONTH == jul ) then
```

```
   setenv SEASON sum
   setenv QUART Q3
## Mobile episode variables
   setenv EPI_STDATE 2002193     # Julian start date
   setenv EPI_STTIME  000000     # start time (HHMMSS)
   setenv EPI_RUNLEN 0960000     # run length (HHHMMSS)
   setenv EPI_NDAY   4           # number of full run days

## Per-period environment variables
   setenv G_STDATE  2002193      # Julian start date
   setenv G_STTIME   000000      # start time (HHMMSS)
   setenv G_TSTEP     10000      # time step  (HHMMSS)
   setenv G_RUNLEN   0250000      # run length (HHHHMMSS)
   setenv ESDATE   20020712      # Start date of emis time-based files/dirs
   setenv MSDATE   20020712      # Start date of met  time-based files
   setenv NDAYS           1      # Duration in days of each emissions file
   setenv MDAYS           1      # Duration in days of met  time-based files
   setenv YEAR         2002      # Base year for year-specific files
endif
if ($MONTH == aug ) then
   setenv SEASON sum
   setenv QUART Q3
## Mobile episode variables
   setenv EPI_STDATE 2002214     # Julian start date
   setenv EPI_STTIME  000000     # start time (HHMMSS)
   setenv EPI_RUNLEN 0960000     # run length (HHHMMSS)
   setenv EPI_NDAY   4           # number of full run days

## Per-period environment variables
   setenv G_STDATE  2002214      # Julian start date
   setenv G_STTIME   000000      # start time (HHMMSS)
   setenv G_TSTEP     10000      # time step  (HHMMSS)
   setenv G_RUNLEN   0250000      # run length (HHHHMMSS)
   setenv ESDATE   20020802      # Start date of emis time-based files/dirs
   setenv MSDATE   20020802      # Start date of met  time-based files
   setenv NDAYS           1      # Duration in days of each emissions file
   setenv MDAYS           1      # Duration in days of met  time-based files
   setenv YEAR         2002      # Base year for year-specific files
endif
if ($MONTH == sep ) then
   setenv SEASON sum
   setenv QUART Q3
```

```
## Mobile episode variables
   setenv EPI_STDATE 2002256     # Julian start date
   setenv EPI_STTIME  000000     # start time (HHMMSS)
   setenv EPI_RUNLEN 0960000     # run length (HHHMMSS)
   setenv EPI_NDAY   4           # number of full run days

## Per-period environment variables
   setenv G_STDATE  2002256      # Julian start date
   setenv G_STTIME   000000      # start time (HHMMSS)
   setenv G_TSTEP     10000      # time step  (HHMMSS)
   setenv G_RUNLEN   0250000      # run length (HHHHMMSS)
   setenv ESDATE   20020913      # Start date of emis time-based files/dirs
   setenv MSDATE   20020913      # Start date of met  time-based files
   setenv NDAYS           1      # Duration in days of each emissions file
   setenv MDAYS           1      # Duration in days of met  time-based files
   setenv YEAR         2002      # Base year for year-specific files
endif
if ($MONTH == oct ) then
   setenv SEASON win
   setenv QUART Q4
## Mobile episode variables
   setenv EPI_STDATE 2002284     # Julian start date
   setenv EPI_STTIME  000000     # start time (HHMMSS)
   setenv EPI_RUNLEN 0960000     # run length (HHHMMSS)
   setenv EPI_NDAY   4           # number of full run days

## Per-period environment variables
   setenv G_STDATE  2002284      # Julian start date
   setenv G_STTIME   000000      # start time (HHMMSS)
   setenv G_TSTEP     10000      # time step  (HHMMSS)
   setenv G_RUNLEN   0250000      # run length (HHHHMMSS)
   setenv ESDATE   20021011      # Start date of emis time-based files/dirs
   setenv MSDATE   20021011      # Start date of met  time-based files
   setenv NDAYS           1      # Duration in days of each emissions file
   setenv MDAYS           1      # Duration in days of met  time-based files
   setenv YEAR         2002      # Base year for year-specific files
endif
if ($MONTH == nov ) then
   setenv SEASON win
   setenv QUART Q4
## Mobile episode variables
   setenv EPI_STDATE 2002319     # Julian start date
```

```
   setenv EPI_STTIME  000000     # start time (HHMMSS)
   setenv EPI_RUNLEN 0960000     # run length (HHHMMSS)
   setenv EPI_NDAY   4           # number of full run days

## Per-period environment variables
   setenv G_STDATE  2002319      # Julian start date
   setenv G_STTIME   000000      # start time (HHMMSS)
   setenv G_TSTEP     10000      # time step  (HHMMSS)
   setenv G_RUNLEN   0250000      # run length (HHHHMMSS)
   setenv ESDATE   20021115      # Start date of emis time-based files/dirs
   setenv MSDATE   20021115      # Start date of met  time-based files
   setenv NDAYS           1      # Duration in days of each emissions file
   setenv MDAYS           1      # Duration in days of met  time-based files
   setenv YEAR         2002      # Base year for year-specific files
endif
if ($MONTH == dec ) then
   setenv SEASON win
   setenv QUART Q4
## Mobile episode variables
   setenv EPI_STDATE 2002347     # Julian start date
   setenv EPI_STTIME  000000     # start time (HHMMSS)
   setenv EPI_RUNLEN 0960000     # run length (HHHMMSS)
   setenv EPI_NDAY   4           # number of full run days

## Per-period environment variables
   setenv G_STDATE  2002347      # Julian start date
   setenv G_STTIME   000000      # start time (HHMMSS)
   setenv G_TSTEP     10000      # time step  (HHMMSS)
   setenv G_RUNLEN   0250000      # run length (HHHHMMSS)
   setenv ESDATE   20021213      # Start date of emis time-based files/dirs
   setenv MSDATE   20021213      # Start date of met  time-based files
   setenv NDAYS           1      # Duration in days of each emissions file
   setenv MDAYS           1      # Duration in days of met  time-based files
   setenv YEAR         2002      # Base year for year-specific files
endif

## Reset days if overrides are available
   if ( $?G_STDATE_ADVANCE ) then
       set date = $G_STDATE
       @ date = $date + $G_STDATE_ADVANCE
       setenv G_STDATE $date
       setenv ESDATE `$IOAPIDIR/datshift $G_STDATE 0`
```

```
   endif

## User-defined I/O directory settings
   setenv EDSS_SUBSYS $EDSS_ROOT/subsys              # EDSS subsystem dir
   setenv SMKROOT     $EDSS_SUBSYS/smoke             # System root dir
   setenv SMKDAT      $EDSS_ROOT/data                # Data root dir
   setenv ASSIGNS     $SMKROOT/assigns/cmaq_12      # smoke assigns files
#
## Override speciation setting, if override variable is set
if ( $?SPC_OVERRIDE ) then
   if ( $SPC != " " ) then
      setenv SPC $SPC_OVERRIDE
   endif
endif
#
## Override year setting, if override variable is set
if ( $?YEAR_OVERRIDE ) then
   setenv YEAR $YEAR_OVERRIDE
endif
#
## Make changes to names for future year and/or control strategy
set outstat = 0
source $ASSIGNS/set_case.scr
if ( $status > 0 ) then
   set outstat = 1
endif

## Set dependent directory names
#
source $ASSIGNS/set_dirs.scr

## Check script settings
source $ASSIGNS/check_settings.scr

##########  SMOKE formatted raw inputs #############
#
## Area-source input files
if ( $SMK_SOURCE == 'A' ) then
   setenv REPCONFIG $INVDIR/area/REPCONFIG.area.txt                 # Default report configurations
   setenv ARTOPNT   $INVDIR/other/artopnt.1999.txt                  # area-to-point assignments
   setenv AGPRO     $GE_DAT/amgpro.stl12km128x149_022107      # Area gridding surrogates
   setenv AGREF     $GE_DAT/amgref.m3.us+can+mex.080905.txt             # Area gridding x-ref
```

```
   setenv ATPRO     $GE_DAT/amptpro.m3.us+can.080405.txt               # Temporal profiles
   setenv ATREF     $GE_DAT/amptref.m3.080405.txt               # Area temporal x-ref

  if($SRCABBR == 'ar') then
   setenv ARINV     $INVDIR/area/arinv.stationary.$SEASON.$GRID.lst               # Stationary area emission inventory
  endif
  if($SRCABBR == 'ard') then
   setenv ARINV     $INVDIR/area/arinv.stationary.$SEASON.lst               # Stationary area emission inventory

  endif
    if($SRCABBR == 'arf') then
   setenv ARINV     $INVDIR/fires/arinv.fires.$SEASON.$GRID.lst                    # Fires emission inventory as area
sources
   setenv AGPRO     $GE_DAT/amgpro.stl12km128x149_022107      # Area gridding surrogates
   setenv AGREF     $GE_DAT/amgref.m3.us+can+mex.080905.txt             # Area gridding x-ref
   setenv ATPRO     $GE_DAT/amptpro.m3.us+can.080405.txt               # Temporal profiles
   setenv ATREF     $GE_DAT/amptref.m3.080405.txt               # Area temporal x-ref
  endif
   if($SRCABBR == 'arfd') then
   setenv ARINV     $INVDIR/fires/arinv.fires.$SEASON.lst                     # Fires emission inventory as area sources
   setenv AGPRO     $GE_DAT/amgpro.stl12km128x149_022107      # Area gridding surrogates
   setenv AGREF     $GE_DAT/amgref.m3.us+can+mex.080905.txt             # Area gridding x-ref
   setenv ATPRO     $GE_DAT/amptpro.m3.us+can.080405.txt               # Temporal profiles
   setenv ATREF     $GE_DAT/amptref.m3.080405.txt               # Area temporal x-ref
  endif
  if ( $SRCABBR == 'nh3') then
   setenv ARINV    $INVDIR/ammonia/nh3inv.$MONTH.lst    # Ammonia area sources (specific to cenrap)
   setenv ATPRO     $GE_DAT/ge_dat_nh3/amptpro.m3.us+can.cenrap.010605.txt       # Temporal profiles
   setenv ATREF     $GE_DAT/ge_dat_nh3/NH3_CENRAP_MW_temp-xref_monthly.082506.txt              # Area temporal x-ref
  endif
  if ( $SRCABBR == 'nrm') then
   setenv ARINV     $INVDIR/nonroad/arinv.nonroad.$MONTH.lst       # Nonroad mobile monthly emission inventory
   setenv  ATREF   $GE_DAT/amptref.m3.080905.WRAP_b02a_uniform_monthly.txt1  # Area temporal x-ref for monthly
emissions
   setenv  ATPRO   $GE_DAT/amptpro.m3.071905.WRAP_b02a_$MONTH.txt
  endif
  if ( $SRCABBR == 'nry') then
   setenv ARINV     $INVDIR/nonroad/arinv.nonroad.ann.NoCanMex.lst          # Nonroad mobile yearly emission inventory
  endif
  if ( $SRCABBR == 'mar' ) then
    setenv ARINV $INVDIR/nonroad/arinv.nonroad_CmvAirLoc.sum.NoCanMex.lst
  endif
```

```
    if ( $SRCABBR == 'ds') then
   setenv ARINV     $INVDIR/dust/arinv.dust.$SEASON.lst               # Roaddust emission inventory
  endif

endif

#
## Biogenic input files
if ( $SMK_SOURCE == 'B' ) then
   setenv BGUSE   $SMKDAT/inventory/beld2/beld.5.us36.txt  # Gridded landuse
   setenv METLIST $INVDIR/biog/metlist.tmpbio.txt   # Meteorology file list for temperatures
   setenv RADLIST $INVDIR/biog/radlist.tmpbio.txt   # Meteorology file list for solar radiation
   setenv BFAC    $GE_DAT/bfac.summer.txt     # Default biogenic emission factors
   setenv S_BFAC  $GE_DAT/bfac.summer.txt     # Summer biogenic emission factors
   setenv W_BFAC  $GE_DAT/bfac.winter.txt     # Winter biogenic emission factors
   setenv BCUSE   $GE_DAT/landuse.dat         # County landuse
   setenv B3FAC   $GE_DAT/b3fac.march2002.beisv3.09.txt
   setenv B3XRF   $GE_DAT/b3tob2B.xrf         # Beld3 to Beld2 cross-reference
   setenv BELD3_TOT $SMKDAT/inventory/beld3/LAND_TOTALS_c_cmaq_nat.dat
   setenv BELD3_A   $SMKDAT/inventory/beld3/LANDA_c_cmaq_nat.dat
   setenv BELD3_B   $SMKDAT/inventory/beld3/LANDB_c_cmaq_nat.dat
   setenv SOILINP  $STATIC/soilinp.$GRID.$SPC.ncf  # NO soil input file
endif

if ( $SMK_SOURCE == 'B' || $MRG_BIOG == 'Y' ) then
   setenv BGPRO   $GE_DAT/abmgpro.m3.040402.us36+can+mex.txt  # Biogenic gridding surrogates
endif

#
## Mobile source input files
if ( $SMK_SOURCE == 'M' ) then
   setenv MBINV     $INVDIR/mobile/mbinv.lst               # mobile emissions
   setenv VMTMIX    $INVDIR/mobile/vmtmix.txt              # VMT mix (for EMS input)
   setenv MEPROC    $INVDIR/mobile/meproc.txt              # Mobile emission processes
   setenv MCODES    $INVDIR/mobile/mcodes.txt              # mobile codes
   setenv MCREF     $INVDIR/mobile/mcref.$MSCEN.txt        # County cross-reference file
   setenv MVREF     $INVDIR/mobile/mvref.$MSCEN.txt        # County settings file
   setenv METLIST   $INVDIR/mobile/metlist.premobl.txt     # Episode meteorology files list
   setenv SPDREF    $INVDIR/mobile/spdref.$MSCEN.txt       # Speed cross-reference file
   setenv SPDPRO    $INVDIR/mobile/spdpro.$MSCEN.txt       # Speed profiles file
   setenv REPCONFIG $INVDIR/mobile/REPCONFIG.mobile.txt    # Default report configurations
   setenv MGPRO     $GE_DAT/abmgpro.m3.040402.us36+can+mex.txt # Mobile gridding surrogates
```

```
   setenv MGREF     $GE_DAT/amgref.m3.us+can+mex.cenrap.091604.txt          # Mobile gridding x-ref
   setenv MTPRO     $GE_DAT/amptpro.m3.us+can.txt          # Temporal profiles
   setenv MTREF     $GE_DAT/amptref.m3.072105.txt          # Mobile temporal x-ref
endif
#
## Point source input files
if ( $SMK_SOURCE == 'P' ) then
   if ($SRCABBR == 'pe' ) then
   setenv PTINV      $INVDIR/point/ptinv.egu.$SEASON.lst                 # EMS-95 point emissions
   setenv PTDAY      $INVDIR/point/ptday.egu.lst                 # daily point emis
   setenv PTHOUR     $INVDIR/point/pthour.egu.lst                # hourly point emis
   setenv PELVCONFIG $INVDIR/point/pelvconfig.stlb4.txt      # elevated source selection
   setenv REPCONFIG  $INVDIR/point/repconfig.point.txt       # Default report configurations
   #      PTMPLIST                                           # Set automatically by script
    setenv PTPRO      $GE_DAT/ptpro.$QUART.112106.txt           # Temporal profiles
    setenv PTREF      $GE_DAT/ptref.$QUART.041007.txt          # Point temporal x-ref
   setenv PSTK       $GE_DAT/pstk.m3.txt                       # Replacement stack params
   endif

   if ($SRCABBR == 'ofp' ) then
    setenv PTINV      $INVDIR/point/ptinv.goads.lst
    setenv PELVCONFIG $INVDIR/point/pelvconfig.stlb4.txt      # elevated source selection
    setenv PTPRO      $GE_DAT/ge_dat_ofs/amptpro.m3.goads.txt            # Temporal profiles
    setenv REPCONFIG  $INVDIR/point/repconfig.point.txt       # Default report configurations
    setenv PTREF      $GE_DAT/ge_dat_ofs/amptref.m3.goads.txt             # Point temporal x-ref
    setenv PSTK       $GE_DAT/pstk.m3.txt                       # Replacement stack params
   endif

   if ( $SRCABBR == alf ) then
      setenv PTINV      $INVDIR/fires/ptinv.$SRCABBR.$MONTH.lst
      setenv PTDAY      $INVDIR/fires/ptday.$SRCABBR.$MONTH.lst
      setenv PTHOUR     $INVDIR/fires/pthour.$SRCABBR.$MONTH.lst
      setenv PSTK       $GE_DAT/pstk.m3.txt                       # Replacement stack params
      setenv PELVCONFIG $INVDIR/fires/pelvconfig.top50.txt      # elevated source selection
      setenv REPCONFIG  $INVDIR/point/repconfig.point.txt       # Default report configurations
      setenv PTPRO      $GE_DAT/amptpro.m3.us+can.080405.txt           # Temporal profiles
      setenv PTREF      $GE_DAT/amptref.m3.080405.txt          # Point temporal x-ref
   endif

   if ($SRCABBR == 'ptne_RACT-final-7facilities_PM-RACT' ) then
    setenv PTINV      $INVDIR/point/ptinv.nonegu.RACT-7facilities_PM-RACT.$SEASON.lst                # EMS-95 point
emissions
```

```
   setenv PTDAY      $INVDIR/point/ptday.nonegu.$MONTH.lst                 # daily point emis
   setenv PTHOUR     $INVDIR/point/pthour.lst                # hourly point emis
   setenv PELVCONFIG $INVDIR/point/pelvconfig.stlb4.txt      # elevated source selection
   setenv REPCONFIG  $INVDIR/point/repconfig.point.txt       # Default report configurations
   #      PTMPLIST                                           # Set automatically by script
    setenv PTPRO      $GE_DAT/ptpro.$QUART.112106.txt           # Temporal profiles
    setenv PTREF      $GE_DAT/ptref.$QUART.041007.txt          # Point temporal x-ref
   setenv PSTK       $GE_DAT/pstk.m3.txt                     # Replacement stack params
   endif
endif
#
## Shared input files
if ( $SMK_SOURCE == 'P' ) then
if ($SRCABBR == 'ofp' ) then
   setenv INVTABLE    $INVDIR/other/invtable_nonroad.cb4.120202.txt  # Inventory table
   setenv NHAPEXCLUDE $INVDIR/other/nhapexclude.1999.txt             # NONHAPVOC exclusions x-ref
   setenv GRIDDESC    $GE_DAT/GRIDDESC                               # Grid descriptions.
   setenv COSTCY      $GE_DAT/ge_dat_ofs/costcy.goads.txt            # country/state/county info
   setenv HOLIDAYS    $GE_DAT/holidays.txt                           # holidays for day change
   setenv SCCDESC     $GE_DAT/ge_dat_ofs/scc_desc.goads.txt          # SCC descriptions
   setenv SRGDESC     $GE_DAT/srg_desc_EPA1999+Mex_12k.txt           # surrogate descriptions
   setenv ORISDESC    $GE_DAT/oris_info.txt                          # ORIS ID descriptions
   setenv GSCNV       $GE_DAT/gscnv.txt                              # ROG to TOG conversion facs
   setenv GSREF       $GE_DAT/ge_dat_ofs/gsref.goads.cmaq.cb4p25.txt # Speciation x-ref
   setenv GSPRO       $GE_DAT/ge_dat_ofs/gspro.cmaq.cb4p25.txt       # Speciation profiles
endif
#else
if ($SRCABBR == 'ofa') then
   setenv INVTABLE    $INVDIR/other/invtable_nonroad.cb4.120202.txt  # Inventory table
   setenv NHAPEXCLUDE $INVDIR/other/nhapexclude.1999.txt             # NONHAPVOC exclusions x-ref
   setenv GRIDDESC    $GE_DAT/GRIDDESC                               # Grid descriptions.
   setenv COSTCY      $GE_DAT/ge_dat_ofs/costcy.goads.txt            # country/state/county info
   setenv HOLIDAYS    $GE_DAT/holidays.txt                           # holidays for day change
   setenv SCCDESC     $GE_DAT/ge_dat_ofs/scc_desc.goads.txt          # SCC descriptions
   setenv SRGDESC     $GE_DAT/srg_desc_EPA1999+Mex_12k.txt           # surrogate descriptions
   setenv ORISDESC    $GE_DAT/oris_info.txt                          # ORIS ID descriptions
   setenv GSCNV       $GE_DAT/gscnv.txt                              # ROG to TOG conversion facs
   setenv GSREF       $GE_DAT/ge_dat_ofs/gsref.goads.cmaq.cb4p25.txt # Speciation x-ref
   setenv GSPRO       $GE_DAT/ge_dat_ofs/gspro.cmaq.cb4p25.txt       # Speciation profiles
endif
else
   setenv INVTABLE    $INVDIR/other/invtable_nonroad.cb4.120202.txt # Inventory table
```

```
   setenv NHAPEXCLUDE $INVDIR/other/nhapexclude.1999.txt # NONHAPVOC exclusions x-ref
   setenv GRIDDESC    $GE_DAT/GRIDDESC             # Grid descriptions.
   setenv COSTCY      $GE_DAT/costcy.txt           # country/state/county info
   setenv HOLIDAYS    $GE_DAT/holidays.txt         # holidays for day change
   setenv SCCDESC     $GE_DAT/scc_desc.txt         # SCC descriptions
   setenv SRGDESC     $GE_DAT/srg_desc_EPA1999+Mex_12k.txt           # surrogate descriptions
   setenv ORISDESC    $GE_DAT/oris_info.txt        # ORIS ID descriptions
   setenv GSCNV       $GE_DAT/gscnv.txt            # ROG to TOG conversion facs
   setenv GSREF       $GE_DAT/gsref.$SPC.071505.txt           # Speciation x-ref
   setenv GSPRO       $GE_DAT/gspro.$SPC.cenrap.102804.txt           # Speciation profiles
endif

   # For cases when GSREF and GSPRO is not a shared file.
   if ( $?SMK_SOURCE && $?SPC_SRC_SPECIFIC ) then
      if ( $SMK_SOURCE == A && $SPC_SRC_SPECIFIC == Y ) then
         set file1 = $GE_DAT/gsref.$SPC.a.txt
         set file2 = $GE_DAT/gspro.$SPC.a.txt
      endif
      if ( $SMK_SOURCE == M && $SPC_SRC_SPECIFIC == Y ) then
         set file1 = $GE_DAT/gsref.$SPC.m.txt
         set file2 = $GE_DAT/gspro.$SPC.m.txt
      endif
      if ( $SMK_SOURCE == P && $SPC_SRC_SPECIFIC == Y ) then
         set file1 = $GE_DAT/gsref.$SPC.p.txt
         set file2 = $GE_DAT/gspro.$SPC.p.txt
      endif
      if ( -e $file1 ) then
         setenv GSREF $file1
      endif
      if ( -e $file2 ) then
         setenv GSPRO $file2
      endif
   endif
#
## Override shared inputs
if ( $?INVTABLE_OVERRIDE ) then
   if ( $INVTABLE_OVERRIDE != " " ) then
      setenv INVTABLE $INVDIR/other/$INVTABLE_OVERRIDE
   endif
endif

#
```

```
## Miscellaeous input files
   if ( $RUN_MRGGRID == Y ) then
      setenv FILELIST   $INVDIR/other/filelist.mrggrid.txt
   endif
   if ( $RUN_GEOFAC == Y ) then
      setenv AGTS     $OUTPUT/no_file_set
      setenv GEOMASK  $INVDIR/other/no_file_set
      setenv SPECFACS $INVDIR/other/no_file_set
      setenv AGTSFAC  $INVDIR/other/no_file_set
   endif
   if ( $RUN_PKTREDUC == Y ) then
      setenv GCNTL_OUT $INVDIR/no_file_set   #
   endif
   if ( $RUN_SMK2EMIS == Y ) then
      setenv VNAMMAP  $GE_DAT/VNAMMAP.dat
      setenv UAM_AGTS $OUTPUT/uam_agts_l.$ESDATE.$NDAYS.$GRID.$ASCEN.ncf
      setenv UAM_BGTS $OUTPUT/uam_bgts_l.$ESDATE.$NDAYS.$GRID.$BSCEN.ncf
      setenv UAM_MGTS $OUTPUT/uam_mgts_l.$ESDATE.$NDAYS.$GRID.$MSCEN.ncf
      setenv UAM_PGTS $OUTPUT/uam_pgts_l.$ESDATE.$NDAYS.$GRID.$PSCEN.ncf
      setenv UAM_EGTS $OUTPUT/uam_egts_l.$ESDATE.$NDAYS.$GRID.$ESCEN.ncf
   endif
   if( $RUN_UAMEMIS == Y ) then
      setenv UAMEMIS $OUTPUT/no_file_set
      setenv E2DNCF  $OUTPUT/e2dncf.ncf
   endif

## Meteorology IO/API input files (MCIP output files)
#
   setenv METDAT $SMKDAT/met/annual/$METSCEN
   if ( $SMK_SOURCE == 'B' || $SMK_SOURCE == 'M' || $SMK_SOURCE == 'P' ) then
      setenv GRID_CRO_2D $METDAT/GRIDCRO2D_$G_STDATE
      setenv GRID_CRO_3D $METDAT/GRIDCRO3D_$G_STDATE
      setenv MET_CRO_2D  $METDAT/METCRO2D_$G_STDATE
      setenv MET_CRO_3D  $METDAT/METCRO3D_$G_STDATE
      setenv MET_DOT_3D  $METDAT/METDOT3D_$G_STDATE
      setenv MET_FILE1   $MET_CRO_3D
      setenv MET_FILE2   $MET_CRO_2D
   endif

#
##########################################################################
#
```

```
## Output and Intermediate files
#
## Area source intermediate and output files
#
if ( $SMK_SOURCE == 'A' ) then
   setenv ASCC     $INVOPD/ASCC.$FYIOP.txt
   setenv REPINVEN $REPSTAT/repinven.a.$INVOP.txt
   setenv ATSUP    $SMKDAT/run_${ASCEN}/scenario/atsup.$ESDATE.$ASCEN.txt
   setenv ASSUP    $SMKDAT/run_${ABASE}/static/assup.$SPC.$ABASE.txt
   setenv AGSUP    $SMKDAT/run_$ABASE/static/agsup.$GRID.$ABASE.txt
   setenv ACREP    $REPSTAT/acrep.$ASCEN.rpt
   setenv APROJREP $REPSTAT/aprojrep.$ASCEN.rpt
   setenv AREACREP $REPSTAT/areacrep.$ASCEN.rpt
   setenv ACSUMREP $REPSTAT/acsumrep.$ASCEN.rpt
   setenv ACTLWARN $REPSTAT/actlwarn.$ASCEN.txt
   setenv AREA_O   $INVOPD/area.map.$FYINV.txt
   setenv ARINV_O  $ARDAT/arinv.$FYINV.ida.txt

   setenv NSCC     $INVOPD/NSCC.$FYIOP.txt
   setenv NEPINVEN $REPSTAT/repinven.nr.$INVOP.txt
   setenv NTSUP    $SMKDAT/run_${ASCEN}/scenario/ntsup.$ESDATE.$ASCEN.txt
   setenv NSSUP    $SMKDAT/run_${ABASE}/static/nssup.$SPC.$ABASE.txt
   setenv NGSUP    $SMKDAT/run_$ABASE/static/ngsup.$GRID.$ABASE.txt
   setenv NCREP    $REPSTAT/ncrep.$ASCEN.rpt
   setenv NPROJREP $REPSTAT/nprojrep.$ASCEN.rpt
   setenv NREACREP $REPSTAT/nreacrep.$ASCEN.rpt
   setenv NCSUMREP $REPSTAT/ncsumrep.$ASCEN.rpt
   setenv NCTLWARN $REPSTAT/nctlwarn.$ASCEN.txt
   setenv NROAD_O  $INVOPD/nroad.map.$FYINV.txt
   setenv NRINV_O  $ARDAT/nrinv.$FYINV.ida.txt
endif

if ( $SMK_SOURCE == A || $RUN_SMKMERGE == Y && $MRG_AREA == Y ) then
   setenv AREA     $INVOPD/area.map.$FYIOP.txt   # Area inventory map
   setenv ATMP     $SMKDAT/run_$ASCEN/scenario/atmp.$ESDATE.$NDAYS.$ASCEN.ncf
   setenv ASMAT_S  $SMKDAT/run_$ABASE/static/asmat_s.$SPC.$ABASE.ncf
   setenv ASMAT_L  $SMKDAT/run_$ABASE/static/asmat_l.$SPC.$ABASE.ncf
   setenv ARMAT_L  $SMKDAT/run_$ASCEN/static/armat_l.$SPC.$ASCEN.ncf
   setenv ARMAT_S  $SMKDAT/run_$ASCEN/static/armat_s.$SPC.$ASCEN.ncf
   setenv ARSUP    $SMKDAT/run_$ASCEN/static/arsup.$ASCEN.txt
   setenv ACMAT    $SMKDAT/run_$ASCEN/static/acmat.$ASCEN.ncf
   setenv AGMAT    $SMKDAT/run_$ABASE/static/agmat.$GRID.$ABASE.ncf
```

```
   setenv APMAT    $SMKDAT/run_$ASCEN/static/apmat.$ASCEN.ncf

   setenv NROAD    $INVOPD/nroad.map.$FYIOP.txt  # Nonroad inventory map
   setenv NTMP     $SMKDAT/run_$ASCEN/scenario/ntmp.$ESDATE.$NDAYS.$ASCEN.ncf
   setenv NSMAT_S  $SMKDAT/run_$ABASE/static/nsmat_s.$SPC.$ABASE.ncf
   setenv NSMAT_L  $SMKDAT/run_$ABASE/static/nsmat_l.$SPC.$ABASE.ncf
   setenv NRMAT_L  $SMKDAT/run_$ASCEN/static/nrmat_l.$SPC.$ASCEN.ncf
   setenv NRMAT_S  $SMKDAT/run_$ASCEN/static/nrmat_s.$SPC.$ASCEN.ncf
   setenv NRSUP    $SMKDAT/run_$ASCEN/static/nrsup.$ASCEN.txt
   setenv NCMAT    $SMKDAT/run_$ASCEN/static/ncmat.$ASCEN.ncf
   setenv NGMAT    $SMKDAT/run_$ABASE/static/ngmat.$GRID.$ABASE.ncf
   setenv NPMAT    $SMKDAT/run_$ASCEN/static/npmat.$ASCEN.ncf
endif

## Biogenic source intermediate and output files
#
if ( $SMK_SOURCE == 'B' ) then
   setenv BGRD      $INVOPD/bgrd.summer.$GRID.$BSCEN.ncf  # Summer/default normalized bio emis
   setenv BGRDW     $INVOPD/bgrd.winter.$GRID.$BSCEN.ncf  # Winter grd normalized bio emis
   setenv BIOSEASON $GE_DAT/bioseason.$YEAR.us36.ncf
   setenv B3GRD     $INVOPD/b3grd.$GRID.$BSCEN.ncf
   setenv SOILOUT   $STATIC/soilout.$GRID.$SPC.ncf  # NO soil output file
endif

if ( $SMK_SOURCE == 'B' || $MRG_BIOG == 'Y' ) then
   setenv BGTS_L    $B_OUT/bgts_l.$ESDATE.$NDAYS.$GRID.$MSB.ncf
   setenv BGTS_S    $B_OUT/bgts_s.$ESDATE.$NDAYS.$GRID.$MSB.ncf
   setenv B3GTS_L   $B_OUT/b3gts_l.$ESDATE.$NDAYS.$GRID.$MSB.ncf
   setenv B3GTS_S   $B_OUT/b3gts_s.$ESDATE.$NDAYS.$GRID.$MSB.ncf
   setenv BGTS_L_O  $B_OUT/bgts_l_o.$ESDATE.$NDAYS.$GRID.$MSB.ncf
   setenv BGTS_S_O  $B_OUT/bgts_s_o.$ESDATE.$NDAYS.$GRID.$MSB.ncf
   setenv B3GTS_L_O $B_OUT/b3gts_l_o.$ESDATE.$NDAYS.$GRID.$MSB.ncf
   setenv B3GTS_S_O $B_OUT/b3gts_s_o.$ESDATE.$NDAYS.$GRID.$MSB.ncf
endif

# Mobile source intermediate and output files
#
if ( $SMK_SOURCE == 'M' ) then
   setenv MSCC     $INVOPD/MSCC.$FYIOP.txt
   setenv REPINVEN $REPSTAT/repinven.m.$INVOP.txt
   setenv MTSUP    $SMKDAT/run_${MSCEN}/scenario/mtsup.$ESDATE.$MSCEN.txt
   setenv MSSUP    $SMKDAT/run_${MBASE}/static/mssup.$SPC.$MBASE.txt
```

```
   setenv MGSUP    $SMKDAT/run_$MBASE/static/mgsup.$GRID.$MBASE.txt
   setenv MCREP    $REPSTAT/mcrep.$MSCEN.rpt
   setenv MPROJREP $REPSTAT/mprojrep.$MSCEN.rpt
   setenv MREACREP $REPSTAT/mreacrep.$MSCEN.rpt
   setenv MCSUMREP $REPSTAT/mcsumrep.$MSCEN.rpt
   setenv MCTLWARN $REPSTAT/mctlwarn.$MSCEN.txt
   #      HOURLYT      automaticall set and created by emisfac_run.scr script
   #      MEFLIST      automatically set and created by smk_run.scr script
   setenv SPDSUM       $STATIC/spdsum.$MSCEN.txt        # Speed summary file
   setenv DAILYGROUP   $STATIC/group.daily.$MSCEN.txt   # Daily group file
   setenv WEEKLYGROUP  $STATIC/group.weekly.$MSCEN.txt  # Weekly group file
   setenv MONTHLYGROUP $STATIC/group.monthly.$MSCEN.txt # Monthly group file
   setenv EPISODEGROUP $STATIC/group.episode.$MSCEN.txt # Episode length group file
   setenv MOBL_O   $INVOPD/mobl.map.$FYINV.txt
   setenv MBINV_O  $MBDAT/mbinv.$FYINV.emis.txt
   setenv MBINV_AO $MBDAT/mbinv.$FYINV.actv.txt
endif

if ( $SMK_SOURCE == M || $RUN_SMKMERGE == Y && $MRG_MOBILE == Y ) then
   setenv MOBL     $INVOPD/mobl.map.$FYIOP.txt   # Mobile inventory map
   setenv MTMP     $SMKDAT/run_$MSCEN/scenario/mtmp.$ESDATE.$NDAYS.$GRID.$MSM.ncf
   setenv MSMAT_L  $SMKDAT/run_$MBASE/static/msmat_l.$SPC.$MBASE.ncf
   setenv MSMAT_S  $SMKDAT/run_$MBASE/static/msmat_s.$SPC.$MBASE.ncf
   setenv MRMAT_L  $SMKDAT/run_$MSCEN/static/mrmat_l.$SPC.$MSCEN.ncf
   setenv MRMAT_S  $SMKDAT/run_$MSCEN/static/mrmat_s.$SPC.$MSCEN.ncf
   setenv MRSUP    $SMKDAT/run_$MSCEN/static/mrsup.$MSCEN.txt
   setenv MCMAT    $SMKDAT/run_$MSCEN/static/mcmat.$MSCEN.ncf
   setenv MUMAT    $SMKDAT/run_$MBASE/static/mumat.$GRID.$MBASE.ncf
   setenv MGMAT    $SMKDAT/run_$MBASE/static/mgmat.$GRID.$MBASE.ncf
   setenv MPMAT    $SMKDAT/run_$MSCEN/static/mpmat.$MSCEN.ncf
endif

## Point source intermediate and output files
#
if ( $SMK_SOURCE == 'P' ) then
   setenv PDAY      $INVOPD/pday.$INVOP.ncf       # Point NetCDF day-specific
   setenv PHOUR     $INVOPD/phour.$INVOP.ncf      # Point NetCDF hour-specific
   setenv PHOURPRO  $INVOPD/phourpro.$INVOP.ncf   # Pt NetCDF src-spec dnl profs
   setenv REPINVEN  $REPSTAT/repinven.p.$INVOP.txt
   setenv PTREF_ALT $INVOPD/ptref.smkout.txt      # Point temporal x-ref
   setenv PTSUP     $SMKDAT/run_${PSCEN}/scenario/ptsup.$ESDATE.$PSCEN.txt
   setenv PSSUP     $SMKDAT/run_${PBASE}/static/pssup.$SPC.$PBASE.txt
```

```
   setenv PCREP     $REPSTAT/pcrep.$PSCEN.rpt
   setenv PPROJREP  $REPSTAT/pprojrep.$PSCEN.rpt
   setenv PREACREP  $REPSTAT/preacrep.$PSCEN.rpt
   setenv PCSUMREP  $REPSTAT/pcsumrep.$PSCEN.rpt
   setenv PCTLWARN  $REPSTAT/pctlwarn.$PSCEN.txt
   setenv PNTS_O    $INVOPD/pnts.map.$FYINV.txt
   setenv PTINV_O   $PTDAT/ptinv_o.$FYINV.ida.txt
   setenv REPPELV   $REPSTAT/reppelv.$PSCEN.rpt
endif

if ( $SMK_SOURCE == P || $RUN_SMKMERGE == Y && $MRG_POINT == Y ) then
   setenv PNTS     $INVOPD/pnts.map.$FYIOP.txt   # Point inventory map
   setenv PSCC     $INVOPD/PSCC.$FYIOP.txt       # Point unique SCC list
   setenv PTMP     $SMKDAT/run_$PSCEN/scenario/ptmp.$ESDATE.$NDAYS.$PSCEN.ncf
   setenv PSMAT_L  $SMKDAT/run_$PBASE/static/psmat_l.$SPC.$PBASE.ncf
   setenv PSMAT_S  $SMKDAT/run_$PBASE/static/psmat_s.$SPC.$PBASE.ncf
   setenv PRMAT_L  $SMKDAT/run_$PSCEN/static/prmat_l.$SPC.$PSCEN.ncf
   setenv PRMAT_S  $SMKDAT/run_$PSCEN/static/prmat_s.$SPC.$PSCEN.ncf
   setenv PRSUP    $SMKDAT/run_$PSCEN/static/prsup.$PSCEN.txt
   setenv PCMAT    $SMKDAT/run_$PSCEN/static/pcmat.$PSCEN.ncf
   setenv PGMAT    $SMKDAT/run_$PBASE/static/pgmat.$GRID.$PBASE.ncf
   setenv PPMAT    $SMKDAT/run_$PSCEN/static/ppmat.$PSCEN.ncf
   setenv STACK_GROUPS $OUTPUT/stack_groups.$GRID.$PBASE.ncf
   setenv PLAY     $SMKDAT/run_$PBASE/scenario/play.$ESDATE.$NDAYS.$GRID.$MSPBAS.ncf
   setenv PLAY_EX  $SMKDAT/run_$PBASE/scenario/play_ex.$ESDATE.$NDAYS.$GRID.$MSPBAS.ncf
   setenv PELV     $STATIC/PELV.$PBASE.txt       # Elev/PinG pt source list
endif

#
## Conditional settings
   if ( $SMK_SOURCE == A && $NONROAD == Y ) then
      setenv ARINV   $NRINV
      setenv AREA    $NROAD
      setenv ATMP    $NTMP
      setenv ASMAT_S $NSMAT_S
      setenv ASMAT_L $NSMAT_L
      setenv ARMAT_S $NRMAT_S
      setenv ARMAT_L $NRMAT_L
      setenv ARSUP   $NRSUP
      setenv ACMAT   $NCMAT
      setenv AGMAT   $NGMAT
      setenv APMAT   $NPMAT
```

```
      setenv ASCC    $NSCC
      setenv REPINVEN $NEPINVEN
      setenv ATSUP    $NTSUP
      setenv ASSUP    $NSSUP
      setenv AGSUP    $NGSUP
      setenv ACREP    $NCREP
      setenv APROJREP $NPROJREP
      setenv AREACREP $NREACREP
      setenv ACSUMREP $NCSUMREP
      setenv ACTLWARN $NCTLWARN
      setenv AREA_O   $NROAD_O
      setenv ARINV_O  $NRINV_O
   endif

   if ( $SMK_SOURCE == A ) then
      unsetenv NRINV NCNTL NROAD NTMP NSMAT_S NSMAT_L NRMAT_S NRMAT_L NRSUP NCMAT NGMAT NPMAT
      unsetenv NSCC NEPINVEN NTSUP NSSUP NGSUP NCREP NPROJREP NREACREP NCSUMREP NROAD_O NRINV_O
   endif
#
#  Merge output files
   source $ASSIGNS/setmerge_files.scr
#
#  Create and change permissions for output directories
   $ASSIGNS/smk_mkdir

   if ( $status > 0 ) then
      set outstat = 1
   endif
#
#  Get system-specific flags
   source $ASSIGNS/sysflags

   if ( $status > 0 ) then
      set outstat = 1
   endif

#  Delete appropriate NetCDF files for the programs that are being run
   if ( -e $ASSIGNS/smk_rmfiles.scr ) then
      $ASSIGNS/smk_rmfiles.scr
   else
      echo "NOTE: missing smk_rmfiles.scr in ASSIGNS directory for"
      echo "      automatic removal of SMOKE I/O API intermediate and"
```

```
      echo "      output files"
   endif
#
#  Unset temporary environment variables
   source $ASSIGNS/unset.scr

if ( $outstat == 1 ) then
   echo "ERROR: Problem found while setting up SMOKE."
   echo "       See messages above."
   exit( 1 )
endif
```

RUN SCRIPT

2002

```
#!/bin/csh -f
#BSUB 0:30

# Version @(#)$Id: smk_pt_nctox.csh,v 1.3 2004/06/28 14:14:50 cseppan Exp $
# Path    $Source: /afs/isis/depts/cep/emc/apps/archive/smoke/smoke/scripts/run/smk_pt_nctox.csh,v $
# Date    $Date: 2004/06/28 14:14:50 $

# This script sets up needed environment variables for running point source
# emissions in SMOKE, and calls the script that runs the SMOKE programs.
#
# Script created by : M. Houyoux, CEP Environmental Modeling Center
#
#*********************************************************************

#setenv MONTH jan
#setenv grid 36km
#setenv SRCABBR  ptne12
#foreach grid (36km 12km)
#foreach MONTH ( jan feb jun jul aug apr may sep oct nov dec mar )
#rm -f /smoke/edss/data_stlb5/run_b5cmaq/scenario/p*
# set Assigns file name
setenv ASSIGNS_FILE /smoke/edss/subsys/smoke2.1/assigns_stlb5/cmaq_12/ASSIGNS.$grid.ptne
```

```
source $ASSIGNS_FILE

# set source category
setenv SMK_SOURCE P           # source category to process
setenv MRG_SOURCE P           # source category to merge
setenv MRG_CTLMAT_MULT ' '    # [A|P|AP] for merging with multiplier controls
setenv MRG_CTLMAT_ADD  ' '    # [A|P|AP] for merging with additive controls
setenv MRG_CTLMAT_REAC ' '    # [A|M|P|AMP] for merging with reactivity controls


## time independent programs
#setenv RUN_SMKINVEN  Y        #  run inventory import program
#setenv RUN_SPCMAT    Y        #  run speciation matrix program
#setenv RUN_GRDMAT    Y        #  run gridding matrix program
setenv RUN_CNTLMAT   N        #  run control matrix program

## time-dependent programs
setenv RUN_TEMPORAL  N        #  run temporal allocation program
setenv RUN_ELEVPOINT N        #  run elevated/PinG sources selection program
setenv RUN_LAYPOINT  N        #  run layer fractions program
setenv RUN_SMKMERGE  N        #  run merge program
setenv RUN_SMK2EMIS  N        #  run conversion of 2-d to UAM binary

# quality assurance
# quality assurance
if ($MONTH == jan || $MONTH == jun) then
setenv RUN_SMKREPORT Y        # Y runs reporting for state reports
else
setenv RUN_SMKREPORT N        # Y runs reporting for state reports
endif

## Program-specific controls...

## For Smkinven
setenv FILL_ANNUAL          Y # Y fills annual value when only average day is provided
setenv HOURLY_TO_DAILY      N # Y reads daily total only from hourly file
setenv HOURLY_TO_PROFILE    N # Y converts hourly data to source-specific profs
setenv IMPORT_AVEINV_YN     Y # Y then import annual/average inventory
setenv RAW_DUP_CHECK        N # Y errors on duplicate records
setenv SMK_BASEYR_OVERRIDE  0 # Enter year of the base year when future-year inven provided
setenv SMK_NHAPEXCLUDE_YN   Y # Y uses NonHAP exclusions file
setenv SMKINVEN_FORMULA     "PMC=PM10-PM2_5" # Internal PMC calculation
```

```
setenv SMK_SWITCH_EPSXY     N # Y corrects x-y location in file for for EPS format
setenv WEST_HSPHERE         Y # Y converts ALL stack coords to western hemisphere
setenv WKDAY_NORMALIZE      N # Y normalizes weekly profiles by weekdays
#     DAY_SPECIFIC_YN     # see multiple-program controls, below
#     HOUR_SPECIFIC_YN    # see multiple-program controls, below
#     OUTZONE             # see multiple-program controls, below
#     REPORT_DEFAULTS     # see multiple-program controls, below
#     VELOC_RECALC        # See multiple-program controls, below

## For Spcmat
setenv POLLUTANT_CONVERSION Y     # Y uses ROG to TOG file, for example
#     REPORT_DEFAULTS         # see multiple-program controls, below

## For Cntlmat
setenv REACTIVITY_POL       ' '   # Set to VOC or ROG (only for reactivity controls)
#     REPORT_DEFAULTS         # see multiple-program controls, below
#     SMK_AVEDAY_YN           # see multiple-program controls

# For Elevpoint
setenv SMK_ELEV_METHOD      1     # 0=Laypoint sets elev srcs; 1=use PELVCONFIG
setenv UNIFORM_STIME        -1    # -1 or HHMMSS for uniform start hour for daily emissions days
#     SMK_PING_METHOD         # see multiple-program controls, below

# For Temporal
setenv RENORM_TPROF         Y     # Y renormalizes temporal profiles
setenv UNIFORM_TPROF_YN     N     # Y makes all temporal profiles uniform
setenv ZONE4WM              Y     # Y uses time zones for start of day & month
#     DAY_SPECIFIC_YN         # see multiple-program controls, below
#     HOUR_SPECIFIC_YN        # see multiple-program controls, below
#     OUTZONE                 # see multiple-program controls, below
#     REPORT_DEFAULTS         # see multiple-program controls, below
#     SMK_AVEDAY_YN           # see multiple-program controls, below
#     Date/time settings      # in Assigns file

# For Laypoint
setenv HOUR_PLUMEDATA_YN    N     # PHOUR file contains hourly plume data
setenv REP_LAYER_MAX        ' '   # Layer no. for reporting high plume rise
setenv SMK_SPECELEV_YN      Y     # Y: Laypoint uses Elevpoint outputs to pick elevated
#     SMK_EMLAYS              # see multiple-program controls, below
#     EXPLICIT_PLUME_YN       # see multiple-program controls, below
#     VELOC_RECALC            # eee multiple-program controls, below
```

```
# For Smkmerge
setenv MRG_TEMPORAL_YN      Y          # Y merges with hourly emissions
setenv MRG_SPCMAT_YN        Y          # Y merges with speciation matrix
setenv MRG_LAYERS_YN        Y          # Y merges with layer fractions
setenv MRG_GRDOUT_YN        Y          # Y outputs gridded file
setenv MRG_REPSTA_YN        N          # Y outputs state totals
setenv MRG_REPCNY_YN        N          # Y outputs county totals
setenv SMK_ASCIIELEV_YN     N          # Y outputs ASCII elevated file
setenv MRG_GRDOUT_UNIT      moles/s    # units for gridded output file
setenv MRG_TOTOUT_UNIT      moles/day  # units for state and/or county totals
setenv MRG_REPORT_TIME      230000     # hour in OUTZONE for reporting emissions
setenv MRG_MARKETPEN_YN     N          # apply reac. controls market penetration
#     EXPLICIT_PLUME_YN           # see multiple-program controls
#     SMK_EMLAYS                  # see multiple-program controls
#     SMK_AVEDAY_YN               # see multiple-program controls
#     SMK_PING_METHOD             # see multiple-program controls, below

# For Smk2emis
setenv SMK2EMIS_VMAP_YN     N     # Y uses name remapping file

# Multiple-program controls
setenv DAY_SPECIFIC_YN      N     # Y imports and uses day-specific inventory
setenv EXPLICIT_PLUME_YN    N     # Y for special wildfire processing for UAM/REMSAD/CAMx
setenv HOUR_SPECIFIC_YN     N     # Y imports and uses hour-specific inventory
setenv OUTZONE              0     # output time zone of emissions
setenv REPORT_DEFAULTS      N     # Y reports default profile application
setenv SMK_EMLAYS           16    # number of emissions layers
setenv SMK_DEFAULT_TZONE    0     # time zone to fix in missing COSTCY file
setenv SMK_AVEDAY_YN        N     # Y uses average day emissions instead of annual
setenv SMK_MAXWARNING       100   # maximum number of warnings in log file
setenv SMK_MAXERROR         100   # maximum number of errors in log file
setenv SMK_PING_METHOD      0     # 1 outputs for PinG (using Elevpoint outputs), 0 no PING
setenv SMK_SPECELEV_YN      Y     # Y uses the indicator for major/minor sources
setenv VELOC_RECALC         Y     # Y recalculates velocity from diam and flow

# Script settings
#setenv SRCABBR            pe      # abbreviation for naming log files
setenv QA_TYPE            all     # [none, all, part1-part4, or custom]
setenv PROMPTFLAG         N       # Y (never set to Y for batch processing)
setenv AUTO_DELETE        Y       # Y deletes SMOKE I/O API output files (recommended)
setenv AUTO_DELETE_LOG    Y       # Y automatically deletes logs without asking
setenv DEBUGMODE          N       # Y changes script to use debugger
```

```
setenv DEBUG_EXE          idb     # Sets the debugger to use when DEBUGMODE = Y

# Override settings
# setenv SPC_OVERRIDE  cmaq.cb4p25  # Chemical mechanism override
# setenv YEAR_OVERRIDE              # Overrides YEAR (base) in Assigns file
# setenv INVTABLE_OVERRIDE          # Inventory table override

##############################################################################

## Run Smkinven, Spcmat, Grdmat, Cntlmat, if needed
#
setenv RUN_PART1 Y
source $ASSIGNS_FILE   # Invoke Assigns file

# Reset NHAPEXCLUDE file to exclude all sources
# This is needed for now because the criteria and toxics point source
#    inventories are not consistent and should not be integrated.
setenv NHAPEXCLUDE $INVDIR/other/nhapexclude.all.txt

source smk_run.csh     # Run programs

source qa_run.csh      # Run QA for part 1
setenv RUN_PART1 N

## Loop through days to run Temporal
#
setenv RUN_PART2 Y
set cnt = 0
set g_stdate_sav = $G_STDATE
while ( $cnt < $EPI_NDAY )

   @ cnt = $cnt + $NDAYS
   source $ASSIGNS_FILE   # Invoke Assigns file to set new dates
   source smk_run.csh     # Run programs
   source qa_run.csh      # Run QA for part 2
   setenv G_STDATE_ADVANCE $cnt

end
setenv RUN_PART2 N
unsetenv G_STDATE_ADVANCE

## Run Elevpoint
```

```
#
setenv RUN_PART3 Y
setenv G_STDATE  $g_stdate_sav
setenv ESDATE `$IOAPIDIR/datshift $G_STDATE 0`
source $ASSIGNS_FILE   # Invoke Assigns file to set new dates
source smk_run.csh     # Run programs
source qa_run.csh      # Run QA for part 3
setenv RUN_PART3 N

## Loop through dats to run Laypoint, Smkmerge, and Smk2emis
setenv RUN_PART4 Y
set cnt = 0
while ( $cnt < $EPI_NDAY )

   @ cnt = $cnt + $NDAYS
   source $ASSIGNS_FILE   # Invoke Assigns file to set new dates
   source smk_run.csh     # Run programs
   source qa_run.csh      # Run QA for part 4

   setenv G_STDATE_ADVANCE $cnt

end
setenv RUN_PART4 N
unsetenv G_STDATE_ADVANCE

#
## Ending of script
#
#end #foreach1
#end #foreach2
exit( 0 )
```

2012

```
#!/bin/csh -f

# Version @(#)$Id: smk_pt_nctox_18.csh,v 1.4 2004/07/26 13:57:34 cseppan Exp $
# Path    $Source: /afs/isis/depts/cep/emc/apps/archive/smoke/smoke/scripts/run/smk_pt_nctox_18.csh,v $
# Date    $Path$

# This script sets up needed environment variables for creating future-year
```

```
# point-source emissions and calls the script that runs the SMOKE programs.
#
# Script created by : M. Houyoux, CEP Environmental Modeling Center
#                     February 2003
#*******************************************************************

# set Assigns file name
setenv ASSIGNS_FILE /smoke/edss/subsys/smoke2.1/assigns_stlb5/cmaq_12/ASSIGNS.$grid.ptne
source $ASSIGNS_FILE

# set future year
setenv FYEAR 2012              # year of future case

# set source category
setenv SMK_SOURCE P           # source category to process
setenv MRG_SOURCE P           # source category to merge
setenv MRG_CTLMAT_MULT ' '    # [A|P|AP] for merging with multiplier controls
setenv MRG_CTLMAT_ADD  ' '    # [A|P|AP] for merging with additive controls
setenv MRG_CTLMAT_REAC ' '    # [A|M|P|AMP] for merging with reactivity controls

# time independent programs
#setenv RUN_CNTLMAT   N         # Y runs control matrix program
#setenv RUN_GRWINVEN  N         # Y runs control application program

# time-dependent programs
#setenv RUN_TEMPORAL  Y         # Y runs temporal allocation program
setenv RUN_ELEVPOINT Y         # Y runs elevated/PinG sources selection program
setenv RUN_LAYPOINT  Y        #  run layer fractions program
setenv RUN_SMKMERGE  Y         # Y runs merge program
setenv RUN_SMK2EMIS  N         # run conversion of 2-d to UAM binary

# quality assurance
if ($MONTH == jan || $MONTH == jun) then
setenv RUN_SMKREPORT Y        # Y runs reporting for state reports
else
setenv RUN_SMKREPORT N        # Y runs reporting for state reports
endif

# Program-specific controls...

# For Cntlmat
#      SMK_AVEDAY_YN (see below)  # Y uses seas emis in assessing cutoff, etc.
```

```
#      REPORT_DEFAULTS            # See multi-program controls

# For Grwinven
setenv SMK_NUM_CTLMAT       2     # number of control/projection matrices
setenv SMK_GRWSMKOUT_YN     Y     # Y outputs a SMOKE-formatted inventory
setenv SMK_GRWIDAOUT_YN     Y     # Y outputs an IDA-formatted inventory

# For Elevpoint
setenv SMK_ELEV_METHOD      1     # 0=Laypoint sets elev srcs; 1=use PELVCONFIG
setenv UNIFORM_STIME        -1    # -1 or HHMMSS for uniform start hour for daily emissions days
#     SMK_PING_METHOD         # see multiple-program controls, below

# For Temporal
setenv RENORM_TPROF         Y     # Y renormalizes temporal profiles
setenv UNIFORM_TPROF_YN     N     # Y makes all temporal profiles uniform
setenv ZONE4WM              Y     # Y uses time zones for start of day & month
#     DAY_SPECIFIC_YN         # see multiple-program controls, below
#     HOUR_SPECIFIC_YN        # see multiple-program controls, below
#     OUTZONE                 # see multiple-program controls, below
#     REPORT_DEFAULTS         # see multiple-program controls, below
#     SMK_AVEDAY_YN           # see multiple-program controls, below
#     Date/time settings      # in Assigns file

# For Laypoint
setenv HOUR_PLUMEDATA_YN    N     # PHOUR file contains hourly plume data
setenv REP_LAYER_MAX        ' '   # Layer no. for reporting high plume rise
setenv SMK_SPECELEV_YN      Y     # Y: Laypoint uses Elevpoint outputs to pick elevated
#     SMK_EMLAYS              # see multiple-program controls, below
#     EXPLICIT_PLUME_YN       # see multiple-program controls, below
#     VELOC_RECALC            # eee multiple-program controls, below

# For Smkmerge
setenv MRG_TEMPORAL_YN      Y          # Y merges with hourly emissions
setenv MRG_SPCMAT_YN        Y          # Y merges with speciation matrix
setenv MRG_LAYERS_YN        Y          # Y merges with layer fractions
setenv MRG_GRDOUT_YN        Y          # Y outputs gridded file
setenv MRG_REPSTA_YN        Y          # Y outputs state totals
setenv MRG_REPCNY_YN        N          # Y outputs county totals
setenv SMK_ASCIIELEV_YN     N          # Y outputs ASCII elevated file
setenv MRG_GRDOUT_UNIT      moles/s    # units for gridded output file
setenv MRG_TOTOUT_UNIT      moles/day  # units for state and/or county totals
setenv MRG_REPORT_TIME      230000     # hour in OUTZONE for reporting emissions
```

```
setenv MRG_MARKETPEN_YN     N          # apply reac. controls market penetration
setenv MRG_CTLMAT_MULT      P
#     EXPLICIT_PLUME_YN           # see multiple-program controls
#     SMK_EMLAYS                  # see multiple-program controls
#     SMK_AVEDAY_YN               # see multiple-program controls
#     SMK_PING_METHOD             # see multiple-program controls, below

# For Smk2emis
setenv SMK2EMIS_VMAP_YN     N     # Y uses name remapping file

# Multiple-program controls
setenv DAY_SPECIFIC_YN      N     # Y imports and uses day-specific inventory
setenv EXPLICIT_PLUME_YN    N     # Y for special wildfire processing for UAM/REMSAD/CAMx
setenv HOUR_SPECIFIC_YN     N     # Y imports and uses hour-specific inventory
setenv OUTZONE              0     # output time zone of emissions
setenv REPORT_DEFAULTS      N     # Y reports default profile application
setenv SMK_EMLAYS           16    # number of emissions layers
setenv SMK_DEFAULT_TZONE    0     # time zone to fix in missing COSTCY file
setenv SMK_AVEDAY_YN        N     # Y uses average day emissions instead of annual
setenv SMK_MAXWARNING       100   # maximum number of warnings in log file
setenv SMK_MAXERROR         100   # maximum number of errors in log file
setenv SMK_PING_METHOD      0     # 1 outputs for PinG (using Elevpoint outputs), 0 no PING
setenv SMK_SPECELEV_YN      Y     # Y uses the indicator for major/minor sources
setenv VELOC_RECALC         Y     # Y recalculates velocity from diam and flow

# Script settings
#setenv SRCABBR        pt.$FYEAR   # abbreviation for naming log files
setenv QA_TYPE            all     # [none, all, part1-part4, or custom]
setenv PROMPTFLAG         N       # Y (never set to Y for batch processing)
setenv AUTO_DELETE        N       # Y deletes SMOKE I/O API output files (recommended)
setenv AUTO_DELETE_LOG    Y       # Y automatically deletes logs without asking
setenv DEBUGMODE          N       # Y changes script to use debugger
setenv DEBUG_EXE          idb     # Sets the debugger to use when DEBUGMODE = Y

# Override settings (comment out if not used)
# setenv SPC_OVERRIDE  cmaq.cb4p25  # Chemical mechanism override
# setenv YEAR_OVERRIDE              # Overrides YEAR (base) in Assigns file
# setenv INVTABLE_OVERRIDE          # Inventory table override
setenv CNTLCASE       OTB            # Control case

##############################################################################
```

```
## NOTE: GCNTL file for point sources must be in the $PRDAT directory for the
#        base case simulation and should have the names, as follows:
#            Projection only       :  gcntl.$YEAR_$FYEAR.txt,
#            Control only          :  gcntl.$CNTLCASE.txt,
#            Projection and control:  gcntl.$YEAR_$FYEAR_$CNTLCASE.txt,
#        where YEAR is set in the Assigns file and FYEAR and CNTLCASE
#        are set in this script.

setenv RUN_PART1 Y
source $ASSIGNS_FILE   # Invoke Assigns file

## Set projection and control matrices to use in Grwinven
#      NOTE: Grwinven setting SMK_NUM_CTLMAT > 1 to use PCMAT02-04
setenv PCMAT01 $PPMAT
setenv PCMAT02 $PCMAT
# setenv PCMAT03
# setenv PCMAT04

## Run Cntlmat and Grwinven
#
if ( $?CNTLCASE ) then
    setenv SRCABBR $SRCABBR.$CNTLCASE
endif
source cntl_run.csh    # Run programs

## Set up for future-year and/or control processing
#
setenv SMK_FUTURE_YN Y
setenv SMK_CONTROL_YN Y
setenv RUN_PART1 N     # Temporarily end part 1
source $ASSIGNS_FILE

setenv RUN_PART1 Y     # Restart part 1
source qa_run.csh      # Run QA for part 1
setenv RUN_PART1 N     # End part 1

## Loop through days to run Temporal
#
setenv RUN_PART2 Y
set cnt = 0
set g_stdate_sav = $G_STDATE
while ( $cnt < $EPI_NDAY )
```

```
   @ cnt = $cnt + $NDAYS
   source $ASSIGNS_FILE   # Invoke Assigns file to set new dates
   source smk_run.csh     # Run programs
   source qa_run.csh      # Run QA for part 2
   setenv G_STDATE_ADVANCE $cnt

end
setenv RUN_PART2 N
unsetenv G_STDATE_ADVANCE

## Run Elevpoint
#
setenv RUN_PART3 Y
setenv G_STDATE  $g_stdate_sav
setenv ESDATE `$IOAPIDIR/datshift $G_STDATE 0`
source $ASSIGNS_FILE   # Invoke Assigns file to set new dates
source smk_run.csh     # Run programs
source qa_run.csh      # Run QA for part 3
setenv RUN_PART3 N

## Loop through days to run Smkmerge and Smk2emis
#
setenv RUN_PART4 Y
set cnt = 0
set g_stdate_sav = $G_STDATE
while ( $cnt < $EPI_NDAY )

   @ cnt = $cnt + $NDAYS
   source $ASSIGNS_FILE   # Invoke Assigns file to set new dates
   source smk_run.csh     # Run programs
   source qa_run.csh      # Run QA for part 2
   setenv G_STDATE_ADVANCE $cnt

end
setenv RUN_PART4 N
unsetenv G_STDATE_ADVANCE

## Ending of script
#
exit( $status )
```

CMAQ

```
#!/bin/bash
#
#  --- define the machines that will run the application
#
cat << ieof > machines
dell-690-2
dell-690-2
apmnode03
apmnode03
apmnode03
apmnode03
ieof
#
#  --- calculate number of PROCS based on machines file
#
NPROCS=`wc -l machines | awk '{print $1+1}'`
export NPROCS

# horizontal domain decomposition
export NPCOL_NPROW="1 $NPROCS"

#
# Set this to whatever compiler produced your executable
export compiler=pg
#export compiler=intel


#   set the simulation period

export NEW_START=true   #always TRUE on first day
start_date=2002081     #first day

#export NEW_START=false  #always FALSE for restart
#start_date=2002270      #restart from this day

end_date=2002181     #last day
echo "START/END DATE: $start_date - $end_date"
```

```
# Set this to $NSLOTS if using grid engine
# NPROCS=$NSLOTS

export VERS=v45
export SOLV=ebi

export M3YEAR=2002
export M3PLAN=stlouis
export MONTH=apr
export M3CASE=base5b_12_RACT-final-7facilities.NationalSteel_new
export CHEM=cb4
# emissions case
export M3ECASE=RACT-final-7facilities.NationalSteel_new.b5Bcmaq_12_OTB
export M3EXTN=${M3PLAN}_${M3CASE}
#
export M3MCASE=v02_aaa
#
export M3GRID=12
export M3VLEV=16
#export DAYCOUNT=2

#export APPL=${VERS}_cb4_${SOLV}_${M3GRID}k_${M3VLEV}L_mpi_${compiler}_kz1_massp_aconc
export APPL=${VERS}_${SOLV}_${CHEM}_ae4_SOAmods3m_${M3GRID}km128x149
export CFG=$APPL
export EXEDIR=/dell-690-2/cmaq_4.5/scripts/cctm
export EXEC=CCTM_${CFG}


##############
# File paths
##############
#
#export M3INPUT=$PATH/CMAQ/inputs
export M3INPUT=/raid1a/ENVIRON

# emissions files location
export EMISpath=/raid1c/Ann_Base5b_RACT-final-7facilities_NationalSteel_new_2012_Emiss_Data_cmaq/cmaq/merged

# Open ocean emission file location
export OCEANpath=/dell-690-2/cmaq_4.5/scripts

# output files location
```

```
export M3OUT=/raid1c/cmaq_4.5/outputs/base5b_2012_12km128x149_RACT-final-7facilities.NationalSteel_new/q2/12BCON
#export M3OUT=/raid2b/CMAQ/redhat4/outputs/${VERS}_${SOLV}_${M3CASE}_${M3GRID}/$EPISODE
mkdir -p $M3OUT/LOGS

# initial conditions file location
export GC_ICpath=/raid1c/cmaq_4.5/outputs/base5b_2012_12km128x149_RACT-final-
7facilities.NationalSteel_new/q2/12BCON/ICON
#export GC_ICpath=$M3INPUT/others/icon_default

# photo rates
export JVALpath=$M3INPUT/cmaq_inputs/jproc/jproc_toms
#export JVALpath=$M3INPUT/others/jproc_toms

# boundry conditions file location
#export GC_BCpath=$M3INPUT/icbc/bc_from_geoschem_new/${MONTH}
export GC_BCpath=/raid1c/cmaq_4.5/outputs/base5b_2012_12km128x149_RACT-final-
7facilities.NationalSteel_new/q2/12BCON/BCON
#export GC_BCpath=$M3OUT/bcon36km

# Met files location
export METpath=/raid1b/MCIP/ENVIRON/StLouis_ANNUAL/${M3GRID}kmbig
#export METpath=$M3INPUT/mcip/$M3GRID


###############
#  File names
###############
# initial conditions file
#export GC_ICfile=ICON_cb4_US_${M3GRID}_${M3VLEV}L_profile
#export GC_ICfile=ICON_v44_cb4_${M3GRID}k_16L_St_Louis.2002025
export GC_ICfile=ICON_STL_ae4_STL_12_128X149_2002081

# boundry conditons file
#export GC_BCfile=BCON_FILENAME.ncf
#export GC_BCfile=BCON_geoschem_new_cb4_${M3GRID}k_16L_St_Louis.2002

export TODAY=$start_date
export STTIME=000000        # beginning GMT time (HHMMSS)
export NSTEPS=240000        # time duration (HHMMSS) for this run
export TSTEP=010000         # output time step interval (HHMMSS)

# horizontal domain decomposition
```

```
#export NPCOL_NPROW="1 $NPROCS"


################
#  master loop
################

while [ "$TODAY" -le "$end_date" ]; do

   rm -f CTM_LOG*

# find out the date for the previous day
   if [ "$TODAY" == "2002001" ]; then
     YESTERDAY=2001365
   else
     YESTERDAY=$(($TODAY - 1))
   fi

if [ "$TODAY" -ge "2002081" ] && [ "$TODAY" -le "2002090" ]; then
     export MONTH="mar"
   else
      if [ "$TODAY" -ge "2002091" ] && [ "$TODAY" -le "2002120" ]; then
        export MONTH="apr"
      else
         if [ "$TODAY" -ge "2002121" ] && [ "$TODAY" -le "2002151" ]; then
            export MONTH="may"
         else
            if [ "$TODAY" -ge "2002152" ]; then
              export MONTH="jun"
            fi
         fi
      fi
fi

# check whether this is a cold start (first day of modeling)
# initial conditions file
   if [ "$NEW_START" == "true" ]; then
      export NEW_START=false
   else
      export PREVDATE=$YESTERDAY
      export GC_ICpath=$M3OUT
      export GC_ICfile=$EXEC.$M3EXTN.CONC.$PREVDATE
```

```
   fi
   export STDATE=$TODAY

# boundry conditons file
#   G_DAY=$(./j2g $STDATE | sed -e 's/ //g')
   export GC_BCfile=BCON_STL_ae4_STL_12_128X149_$TODAY
#   export GC_BCfile=BCON.VISTAS36.16L.CCTM_cb4.$TODAY.ncf
   # start the main cctm job
   export RUN_LOG=$M3OUT/LOGS/LOG.run.cctm.$APPL
   rm -f $RUN_LOG.$TODAY
   echo "LOG: $RUN_LOG.$TODAY"
   date
   echo "run run.cctm ..."
   ./run.cctm.12km.1.MPI.09 > $RUN_LOG.$TODAY 2>&1
   date

   if [ ! -f ${M3OUT}/${EXEC}.${M3EXTN}.CONC.${STDATE} ]; then
      echo 'run.cctm unsucessful, exiting...'
      exit
   fi

   # move on to the next day
   TODAY=$(($TODAY + 1))
   if [ "$TODAY" == "2001366" ]; then
     TODAY=2002001
   fi
##   export STTIME=000000        # beginning GMT time (HHMMSS)
##   export NSTEPS=240000        # time duration (HHMMSS) for this run

done
```

run.cctm.12km.1.MPI.09

```
#!/bin/bash

echo $M3INPUT
if [ ! -e $M3INPUT ]; then
   echo "   $M3INPUT path does not exist"
   exit 1
fi
echo " "
echo " Input data path, M3INPUT set to $M3INPUT"
```

```
echo " "

date
echo "    "


# min sync time step (sec) [300]
export CTM_MINSYNC=300

# symmetric processing [ T | Y | F | N ]
export CTM_SYMPROC=N

# cksum report [ T | Y | F | N ]
export CTM_CKSUM=Y

# cloud diagnostic file [ T | Y | F | N ]
export CLD_DIAG=N

# aerosol diagnostic file [ T | Y | F | N ]
export CTM_AERDIAG=N

# turn off excess WRITE3 logging
export IOAPI_LOG_WRITE=F

# stop on inconsistent input file [ T | Y | F | N ]
export FL_ERR_STOP=F

# remove existing output files?
#DISP=delete
#DISP=update
DISP=keep


# output files and directories
OUTDIR=$M3OUT
if [ ! -d "$OUTDIR" ]; then
   mkdir -p $OUTDIR
fi

CONCfile=$EXEC.$M3EXTN".CONC".$STDATE                    # CTM_CONC_1
ACONCfile=$EXEC.$M3EXTN".ACONC".$STDATE                  # CTM_ACONC_1
DD1file=$EXEC.$M3EXTN".DRYDEP".$STDATE                  # CTM_DRY_DEP_1
```

```
WD1file=$EXEC.$M3EXTN".WETDEP1".$STDATE                 # CTM_WET_DEP_1
WD2file=$EXEC.$M3EXTN".WETDEP2".$STDATE                 # CTM_WET_DEP_2
AV1file=$EXEC.$M3EXTN".AEROVIS".$STDATE                 # CTM_VIS_1
AD1file=$EXEC.$M3EXTN".AERODIAM".$STDATE                # CTM_DIAM_1
PG1file=$EXEC.$M3EXTN".PING".$STDATE                    # CTM_PING_1
PA1file=$EXEC.$M3EXTN".PA_1".$STDATE                    # CTM_IPR_1
PA2file=$EXEC.$M3EXTN".PA_2".$STDATE                    # CTM_IPR_2
PA3file=$EXEC.$M3EXTN".PA_3".$STDATE                    # CTM_IPR_3
IRR1file=$EXEC.$M3EXTN".IRR_1".$STDATE                   # CTM_IRR_1
IRR2file=$EXEC.$M3EXTN".IRR_2".$STDATE                   # CTM_IRR_2
IRR3file=$EXEC.$M3EXTN".IRR_3".$STDATE                   # CTM_IRR_3

# set floor file (neg concs)
export FLOOR_FILE=./FLOOR_${APPL}
#export FLOOR_FILE=./FLOOR_CTM_12km

# set ping floor file (neg concs) [remember: env var .le. 16 chars]
export PLUME_FLOOR_FILE=./CPLUME_FLOOR_${APPL}
#export PLUME_FLOOR_FILE=./CPLUME_FLOOR_CTM_12km


#horizontal grid defn
export GRIDDESC=../GRIDDESC.${M3GRID}km.Annbig
#export GRID_NAME=US_${M3GRID}_${M3VLEV}L
export GRID_NAME=STL_12_128X149

# species for integral average conc
export AVG_CONC_SPCS="O3 NO NO2 CO ASO4J ASO4I ANH4J ANH4I ANO3J ANO3I AORGAJ AORGAI AORGPAJ AORGPAI AORGBJ AORGBI AECJ
AECI ASOC1J ASOC1I ASOC2J ASOC2I ASOC3J ASOC3I ANAJ ANAI ACLJ ACLI A25J A25I ACORS ASOIL"


# layer range for integral average conc
export ACONC_BLEV_ELEV=" 1 1"


G_DAY=$(./j2g $STDATE | sed -e 's/ //g')




#works for Dec01/Jan02
if [ "$STDATE" -le "2001365" ]; then
```

```
  G1_DAY=$(./j2g $STDATE | sed -e 's/2001 12 /12_/g')
  G2_DAY=${G1_DAY}_2001
fi

if [ "$STDATE" -ge "2002001" ]; then
   if [ "$MONTH" == "jan" ]; then
     G1_DAY=$(./j2g $STDATE | sed -e 's/2002 01 /01_/g')
   else
      if [ "$MONTH" == "feb" ]; then
       G1_DAY=$(./j2g $STDATE | sed -e 's/2002 02 /02_/g')
      else
         if [ "$MONTH" == "mar" ]; then
           G1_DAY=$(./j2g $STDATE | sed -e 's/2002 03 /03_/g')
         else
            if [ "$MONTH" == "apr" ]; then
             G1_DAY=$(./j2g $STDATE | sed -e 's/2002 04 /04_/g')
            else
               if [ "$MONTH" == "may" ]; then
                G1_DAY=$(./j2g $STDATE | sed -e 's/2002 05 /05_/g')
                else
                     if [ "$MONTH" == "jun" ]; then
                      G1_DAY=$(./j2g $STDATE | sed -e 's/2002 06 /06_/g')
                  else
                     if [ "$MONTH" == "jul" ]; then
                      G1_DAY=$(./j2g $STDATE | sed -e 's/2002 07 /07_/g')
                  else
                     if [ "$MONTH" == "aug" ]; then
                      G1_DAY=$(./j2g $STDATE | sed -e 's/2002 08 /08_/g')
                  else
                     if [ "$MONTH" == "sep" ]; then
                      G1_DAY=$(./j2g $STDATE | sed -e 's/2002 09 /09_/g')
                  else
                     if [ "$MONTH" == "oct" ]; then
                      G1_DAY=$(./j2g $STDATE | sed -e 's/2002 10 /10_/g')
                                        else
                     if [ "$MONTH" == "nov" ]; then
                      G1_DAY=$(./j2g $STDATE | sed -e 's/2002 11 /11_/g')
                  else
                     if [ "$MONTH" == "dec" ]; then
                      G1_DAY=$(./j2g $STDATE | sed -e 's/2002 12 /12_/g')
                     fi
                   fi
```

```
                  fi
                fi
              fi
           fi
         fi
       fi
     fi
    fi
   fi
  fi
 G2_DAY=${G1_DAY}_2002

fi

export LAYER_FILE=${METpath}/METCRO3D_${G1_DAY}_2002.12km
# input files and directories

# emis files
OCEANfile=OCEANFILE_${GRID_NAME}
#EMISfile=egts_l.${G_DAY}.${M3GRID}.${M3ECASE}.${G_DAY}.ncf
EMISfile=egtsc3d_l.${G_DAY}.1.${M3GRID}km128x149.${M3ECASE}.ncf
#EMISfile=egts3d_l.${G_DAY}.1.${M3GRID}km_photo.stl${M3GRID}km.ncf

# mcip files

#extn=${M3MCASE}.${M3GRID}km
#extn=June02
GC2file=GRIDCRO2D_${G1_DAY}_2002.12km
GD2file=GRIDDOT2D_${G1_DAY}_2002.12km
MC2file=METCRO2D_${G1_DAY}_2002.12km
MD3file=METDOT3D_${G1_DAY}_2002.12km
MC3file=METCRO3D_${G1_DAY}_2002.12km
MB3file=METBDY3D_${G1_DAY}_2002.12km

TR_DVpath=$METpath
TR_DVfile=$MC2file


# 7-level photolysis data w/ file header

JVALfile=JTABLE_cbiv_${STDATE}
#JVALfile=JTABLE_${CHEM}_${TODAY}
```

```
# IC files

AE_ICpath=$GC_ICpath
NR_ICpath=$GC_ICpath
TR_ICpath=$GC_ICpath
AE_ICfile=$GC_ICfile
NR_ICfile=$GC_ICfile
TR_ICfile=$GC_ICfile


# BC files

AE_BCpath=$GC_BCpath
NR_BCpath=$GC_BCpath
TR_BCpath=$GC_BCpath
AE_BCfile=$GC_BCfile
NR_BCfile=$GC_BCfile
TR_BCfile=$GC_BCfile


# input and output files and directories (boilerplate)
source in_out.q


# for the run control ...
export CTM_STDATE=$STDATE
export CTM_STTIME=$STTIME
export CTM_RUNLEN=$NSTEPS
export CTM_TSTEP=$TSTEP
export CTM_PROGNAME=$EXEC


# everything should be set up now, so run the executable
printenv
ls -l $EXEDIR/$EXEC
size $EXEDIR/$EXEC


/usr/bin/time mpirun -v -machinefile machines -np $NPROCS $EXEDIR/$EXEC

date
```