July 2002 Final Basecase (Model Performance)
camx.jul02.baseDm2.CMAQ.kvpatch.mech4noPM

```
#!/bin/csh
#
#   Script to Run CAMx
#
# Environment variables and executable for parallel processing on
# a dual-processor Linux workstation with Portland Group compiler
#
setenv NCPUS 2
setenv MPSTKZ 128M
limit stacksize unlimited
#
set RUN     = "St_LouisBaseD"
set EXEC    = "CAMx.StLouis60.pg_linuxomp"
set INPUT   = "/raid2a/ENVIRON"
set MET     = "/raid1b/MM5CAMx/Jul2-16b2"
set EMIS    = "/raid2a/base4_emiss_jul_camx/merged"
set PTSRCE  = "/raid2a/base4_emiss_jul_camx/merged"
set OTHER  = "../../../inputs"
#set OUTPUT  = "/raid2b/CAMx/outputs/redhat5/jun02b/OB70"
set OUTPUT = "/model/CAMx/outputs/v4.30/jul02dm2/mech4noPM/CMAQ.kvpatch"

mkdir -p ./$RUN
cp $EXEC ./$RUN
cd ./$RUN

#mkdir -p $OUTPUT

#set TODAY = (0729 0730 0731 0801 0802 0803 0804 0805)
set TODAY = (0702 0703 0704 0705 0706 0707 0708 0709 0710 0711 0712 0713 0714
0715 0716)
set YYYYMMDD =(20020702 20020703 20020704 20020705 20020706 20020707 20020708
20020709 20020710 20020711 20020712 20020713 20020714 20020715 20020716)
#set YYYYMMDD = (20020729 20020730 20020731 20020801 20020802 20020803
20020804 20020805)
#set JULIAN = (210 211 212 213 214 215 216 217)
set JULIAN = (183 184 185 186 187 188 189 190 191 192 193 194 195 196 197)

foreach i (1 2 3 4 5 6 7 8 9 10 11 12 13 14 15)
#foreach i (1 2 3 4 5 6 7 8)
  @ MO = $TODAY[$i] / 100
  @ DAY = $TODAY[$i] - ($MO * 100)
if ($i == 1) then
  set RESTART = "false"
  set IC = "$INPUT/icbc/ic_bc_tc_for_camx/episode_4/ic.stl36k.2002183.CAMx"
  @ im1 = $i
  set START = "2002,07,02,0000"
else
  set RESTART = "true"
  set IC =  " "
  @ im1 = ($i - 1)
  set START = "2002,$MO,$DAY,0000"
endif

cat << ieof > CAMx.in
 &CAMx_Control
```

```
 Run_Message      = 'CAMx v4.30 July 2002 BaseD CMAQ.kvp Mech4.noPM.PiG',

!--- Model clock control ---

 Time_Zone        = 0,                  ! (0=UTC,5=EST,6=CST,7=MST,8=PST)
 Restart          = .$RESTART.,
 Start_Date_Hour  = $START,  ! (YYYY,MM,DD,HHmm)
 End_Date_Hour    = 2002,0$MO,$DAY,2400,   ! (YYYY,MM,DD,HHmm)

 Maximum_Timestep    = 15.,             ! minutes
 Met_Input_Frequency = 60.,             ! minutes
 Ems_Input_Frequency = 60.,             ! minutes
 Output_Frequency    = 60.,             ! minutes

!--- Map projection parameters ---

 Map_Projection           = 'LAMBERT', ! (LAMBERT,POLAR,UTM,LATLON)
 UTM_Zone                 = 0,
 POLAR_Longitude_Pole     = -100.,      ! deg (west<0,south<0)
 POLAR_Latitude_Pole      =  40.,       ! deg (west<0,south<0)
 LAMBERT_Center_Longitude = -97.,       ! deg (west<0,south<0)
 LAMBERT_Center_Latitude  =  40.,       ! deg (west<0,south<0)
 LAMBERT_True_Latitude1   =  33.,       ! deg (west<0,south<0)
 LAMBERT_True_Latitude2   =  45.,       ! deg (west<0,south<0)

!--- Parameters for the master (first) grid ---

 Number_of_Grids      = 3,
 Master_Origin_XCoord = -2736.,         ! km or deg, SW corner of cell(1,1)
 Master_Origin_YCoord = -2088.,         ! km or deg, SW corner of cell (1,1)
 Master_Cell_XSize    = 36.,            ! km or deg
 Master_Cell_YSize    = 36.,            ! km or deg
 Master_Grid_Columns  = 148,
 Master_Grid_Rows     = 112,
 Number_of_Layers(1)  = 16,

!--- Parameters for the second grid ---

 Nest_Meshing_Factor(2) = 3,            ! Cell size relative to master grid
 Nest_Beg_I_Index(2)    = 59,           ! Relative to master grid
 Nest_End_I_Index(2)    = 125,          ! Relative to master grid
 Nest_Beg_J_Index(2)    = 22,           ! Relative to master grid
 Nest_End_J_Index(2)    = 87,           ! Relative to master grid
 Number_of_Layers(2)    = 16,

!--- Parameters for the third grid ---

 Nest_Meshing_Factor(3) = 9,            ! Cell size relative to master grid
 Nest_Beg_I_Index(3)    = 79,           ! Relative to master grid
 Nest_End_I_Index(3)    = 106,         ! Relative to master grid
 Nest_Beg_J_Index(3)    = 43,           ! Relative to master grid
 Nest_End_J_Index(3)    = 66,           ! Relative to master grid
 Number_of_Layers(3)    = 16,

!--- Model options ---

 Diagnostic_Error_Check = .false.,       ! True = will stop after 1st timestep
 Advection_Solver       = 'PPM',        ! (PPM,BOTT)
 Chemistry_Solver       = 'CMC',        ! (CMC,IEH,LSODE)
 PiG_Submodel           = 'GREASD',     ! (None,GREASD,IRON)
```

```
 Probing_Tool           = 'None',      !
(None,OSAT,PSAT,GOAT,APCA,DDM,PA,RTRAC)
 Chemistry              = .true.,
 Dry_Deposition         = .true.,
 Wet_Deposition         = .true.,
 Staggered_Winds        = .true.,
 Gridded_Emissions      = .true.,
 Point_Emissions        = .true.,
 Ignore_Emission_Dates  = .true.,

!--- Output specifications ---

 Root_Output_Name         = '$OUTPUT/camx.02${TODAY[$i]}.$RUN',
 Average_Output_3D        = .false.,
 HDF_Format_Output        = .false.,
 HDF_File_Root            = '$OUTPUT/camx.02${TODAY[$i]}.$RUN.hdf',
 Number_of_Output_Species = 16,
 Output_Species_Names(1)  = 'NO  ',
 Output_Species_Names(2)  = 'NO2 ',
 Output_Species_Names(3)  = 'O3  ',
 Output_Species_Names(4)  = 'SO2 ',
 Output_Species_Names(5)  = 'PAR ',
 Output_Species_Names(6)  = 'TOL ',
 Output_Species_Names(7)  = 'ETH ',
 Output_Species_Names(8)  = 'OLE ',
 Output_Species_Names(9)  = 'PAN ',
 Output_Species_Names(10) = 'ISOP',
 Output_Species_Names(11) = 'XYL ',
 Output_Species_Names(12) = 'FORM',
 Output_Species_Names(13) = 'ALD2',
 Output_Species_Names(14) = 'HNO3',
 Output_Species_Names(15) = 'NXOY',
 Output_Species_Names(16) = 'CO  ',

!--- Input files ---

 Chemistry_Parameters = '/model/CAMx/v4.30/inputs/CAMx4.3.chemparam.4_NONE',
 Photolyis_Rates      = '$INPUT/camx_inputs/rates/no_snow/02jul-
16jul/rates.camx.020709.361204.base1',
 Initial_Conditions   = '$IC',
 Boundary_Conditions  =
'$INPUT/icbc/ic_bc_tc_for_camx/episode_4/bc.stl36k.2002${JULIAN[$i]}.CAMx',
 Top_Concentrations   =
'$INPUT/icbc/ic_bc_tc_for_camx/episode_4/topc.stl36k.2002183.CAMx',
 Albedo_Haze_Ozone    = '$INPUT/camx_inputs/ahoz.orig/no_snow/02jul-
16jul/ahoz.camx.02jul-16jul.361204.base1.mdnr',
 Point_Sources        = '$PTSRCE/ptsrce.pig.2002${TODAY[$i]}.base4.bin',
 Master_Grid_Restart  = '$OUTPUT/camx.02${TODAY[$im1]}.$RUN.inst.2',
 Nested_Grid_Restart  = '$OUTPUT/camx.02${TODAY[$im1]}.$RUN.finst.2',
 PiG_Restart          = '$OUTPUT/camx.02${TODAY[$im1]}.$RUN.pig',

 Landuse_Grid(1) = '$INPUT/camx_inputs/landuse/lu.stlouis.36km.bin',
 Landuse_Grid(2) = '$INPUT/camx_inputs/landuse/lu.stlouis.12km.bin',
 Landuse_Grid(3) = '$INPUT/camx_inputs/landuse/lu.stlouis.04km.bin',
 ZP_Grid(1)      = '$MET/pres.camx.02${TODAY[$i]}.natl.36.base2',
 ZP_Grid(2)      = '$MET/pres.camx.02${TODAY[$i]}.CRAP.12.base2',
 ZP_Grid(3)      = '$MET/pres.camx.02${TODAY[$i]}.SLOP.4.base2',
 Wind_Grid(1)    = '$MET/wind.camx.02${TODAY[$i]}.natl.36.base2',
 Wind_Grid(2)    = '$MET/wind.camx.02${TODAY[$i]}.CRAP.12.base2',
 Wind_Grid(3)    = '$MET/wind.camx.02${TODAY[$i]}.SLOP.4.base2',
```

```
 Temp_Grid(1)    = '$MET/temp.camx.02${TODAY[$i]}.natl.36.base2',
 Temp_Grid(2)    = '$MET/temp.camx.02${TODAY[$i]}.CRAP.12.base2',
 Temp_Grid(3)    = '$MET/temp.camx.02${TODAY[$i]}.SLOP.4.base2',
 Vapor_Grid(1)   = '$MET/wvap.camx.02${TODAY[$i]}.natl.36.base2',
 Vapor_Grid(2)   = '$MET/wvap.camx.02${TODAY[$i]}.CRAP.12.base2',
 Vapor_Grid(3)   = '$MET/wvap.camx.02${TODAY[$i]}.SLOP.4.base2',
 Cloud_Grid(1)   = '$MET/clra.camx.02${TODAY[$i]}.natl.36.base2.v4.30',
 Cloud_Grid(2)   = '$MET/clra.camx.02${TODAY[$i]}.CRAP.12.base2.v4.30',
 Cloud_Grid(3)   = '$MET/clra.camx.02${TODAY[$i]}.SLOP.4.base2.v4.30',
 Kv_Grid(1)      =
'$MET/vdif.camx.02${TODAY[$i]}.natl.36.base2.CMAQ.kvpatch',
 Kv_Grid(2)      =
'$MET/vdif.camx.02${TODAY[$i]}.CRAP.12.base2.CMAQ.kvpatch',
 Kv_Grid(3)      = '$MET/vdif.camx.02${TODAY[$i]}.SLOP.4.base2.CMAQ.kvpatch',
 Emiss_Grid(1)   = '$EMIS/emiss_low.base4.stl36km.2002${TODAY[$i]}.CAMx',
 Emiss_Grid(2)   =
'$EMIS/emiss_low.base4.stl12km_photo.2002${TODAY[$i]}.CAMx',
 Emiss_Grid(3)   = '$EMIS/emiss_low.base4.stl4km.2002${TODAY[$i]}.CAMx',

 &
! No probing tools for this run.  Everything below this line is not used.
!-----------------------------------------------------------------------------
---
 &SA_Control

 SA_File_Root              = 'CAMx4.test.020614',
 SA_Summary_Output         = .true.,

 SA_Master_Sfc_Output         = .true.,
 SA_Nested_Sfc_Output         = .true.,
 SA_Stratify_Boundary         = .true.,
 SA_Number_of_Source_Regions  = 10,
 SA_Number_of_Source_Groups   = 3,
 Use_Leftover_Group           = .false.,
 Number_of_Timing_Releases    = 0,
 PSAT_Treat_SULFATE_Class     = .false.,
 PSAT_Treat_NITRATE_Class     = .true.,
 PSAT_Treat_SOA_Class         = .false.,
 PSAT_Treat_PRIMARY_Class     = .false.,
 PSAT_Treat_MERCURY_Class     = .false.,
 PSAT_Treat_OZONE_Class       = .false.,

 SA_Receptor_Definitions  = 'osat.rcp.def.dat',
 SA_Source_Area_Map(1)    = 'osat.src.area.map.g1',
 SA_Source_Area_Map(2)    = 'osat.src.area.map.g2',
 SA_Source_Area_Map(3)    = 'osat.src.area.map.g3',

 SA_Master_Restart        = 'CAMx4.test.020614.osat.inst.2',
 SA_Nested_Restart        = 'CAMx4.test.020614.osat.finst.2',

 SA_Points_Group(1)       = 'ptsrc.utils.020614.bin',
 SA_Points_Group(3)       = 'ptsrc.other.020614.bin',

 SA_Emiss_Group_Grid(1,1) = 'emiss.utils_low.020614.36km.bin',
 SA_Emiss_Group_Grid(1,2) = 'emiss.utils_low.020614.12km.bin',
 SA_Emiss_Group_Grid(1,3) = 'emiss.utils_low.020614.04km.bin',
 SA_Emiss_Group_Grid(2,1) = 'emiss.mv.020614.36km.bin',
 SA_Emiss_Group_Grid(2,2) = 'emiss.mv.020614.12km.bin',
 SA_Emiss_Group_Grid(2,3) = 'emiss.mv.020614.04km.bin',
 SA_Emiss_Group_Grid(3,1) = 'emiss.other.020614.36km.bin',
```

```
 SA_Emiss_Group_Grid(3,2) = 'emiss.other.020614.12km.bin',
 SA_Emiss_Group_Grid(3,3) = 'emiss.other.020614.04km.bin',

 &
!-----------------------------------------------------------------------------
---
 &DDM_Control

 DDM_File_Root                = 'CAMx4.test.020614',
 DDM_Master_Sfc_Output        = .true.,
 DDM_Nested_Sfc_Output        = .true.,
 DDM_Stratify_Boundary        = .true.,
 DDM_Number_of_Source_Regions = 10,
 DDM_Number_of_Source_Groups  = 3,

 Number_of_IC_Species_Groups = 1,
 IC_Species_Groups(1)        = 'O3',
 Number_of_BC_Species_Groups = 1,
 BC_species_Groups(1)        = 'O3',
 Number_of_EM_Species_Groups = 2,
 Emis_Species_Groups(1)      = 'O3',
 Emis_Species_Groups(2)      = 'NOX',

 DDM_Receptor_Definitions  = 'ddm.rcp.def.dat',
 DDM_Source_Area_Map(1)    = 'ddm.src.area.map.g1',
 DDM_Source_Area_Map(2)    = 'ddm.src.area.map.g2',
 DDM_Source_Area_Map(3)    = 'ddm.src.area.map.g3',

 DDM_Initial_Conditions    = 'ic.generic.bin',
 DDM_Boundary_Conditions   = 'bc.generic.bin',
 DDM_Top_Concentrations    = 'tc.generic',
 DDM_Master_Restart        = 'CAMx4.test.020614.ddm.inst.2',
 DDM_Nested_Restart        = 'CAMx4.test.020614.ddm.finst.2',

 DDM_Points_Group(1)       = 'ptsrc.utils.020614.bin',
 DDM_Points_Group(3)       = 'ptsrc.other.020614.bin',

 DDM_Emiss_Group_Grid(1,1) = 'emiss.utils_low.020614.36km.bin',
 DDM_Emiss_Group_Grid(1,2) = 'emiss.utils_low.020614.36km.bin',
 DDM_Emiss_Group_Grid(1,3) = 'emiss.utils_low.020614.36km.bin',
 DDM_Emiss_Group_Grid(2,1) = 'emiss.mv.020614.36km.bin',
 DDM_Emiss_Group_Grid(2,2) = 'emiss.mv.020614.36km.bin',
 DDM_Emiss_Group_Grid(2,3) = 'emiss.mv.020614.36km.bin',
 DDM_Emiss_Group_Grid(3,1) = 'emiss.other.020614.36km.bin',
 DDM_Emiss_Group_Grid(3,2) = 'emiss.other.020614.36km.bin',
 DDM_Emiss_Group_Grid(3,3) = 'emiss.other.020614.36km.bin',

 &
!-----------------------------------------------------------------------------
---
 &RT_Control

 RT_File_Root            = 'CAMx4.test.020614',

 RT_Initial_Conditions   = ' ',
 RT_Boundary_Conditions  = ' ',
 RT_Top_Concentrations   = ' ',
 RT_Master_Restart       = 'CAMx4.test.020614.rtrac.inst.2',
 RT_Nested_Restart       = 'CAMx4.test.020614.rtrac.finst.2',
```

```
 Sampling_Grid            = .true.,
 Number_of_Sampling_Grids = 1,
 SG_Beg_I_Index(1)        = 17,            ! Relative to master grid
 SG_End_I_Index(1)        = 18,
 SG_Beg_J_Index(1)        = 21,
 SG_End_J_Index(1)        = 22,
 SG_Mesh_Factor(1)        = 36.,           ! Cell size relative to master
grid

 RT_Chemistry_Parameters = 'CAMx4.chemparam.rtrac_test',
 RT_Receptor_Definitions = 'receptor.rtrac.test',
 RT_Point_Sources        = 'pt.rtrac.test',
 RT_Emiss_Grid(1)        = 'emiss.rtrac.36km',
 RT_Emiss_Grid(2)        = 'emiss.rtrac.12km',
 RT_Emiss_Grid(3)        = 'emiss.rtrac.04km',

 &
!-----------------------------------------------------------------------------
---
 &PA_Control

 PA_File_Root         = 'CAMx4.test.020614',

 Number_of_PA_Domains = 2,
 Within_CAMx_Grid(1)  = 1,  ! Specify which CAMx grid that this PA domain is
in
 PA_Beg_I_Index(1)    = 8,
 PA_End_I_Index(1)    = 12,
 PA_Beg_J_Index(1)    = 9,
 PA_End_J_Index(1)    = 13,
 PA_Beg_K_Index(1)    = 1,
 PA_End_K_Index(1)    = 5,

 Within_CAMx_Grid(2)  = 3,  ! Specify which CAMx grid that this PA domain is
in
 PA_Beg_I_Index(2)    = 107,
 PA_End_I_Index(2)    = 110,
 PA_Beg_J_Index(2)    = 78,
 PA_End_J_Index(2)    = 82,
 PA_Beg_K_Index(2)    = 1,
 PA_End_K_Index(2)    = 7,

 &
ieof

cp CAMx.in CAMx.in.02${TODAY[$i]}
uname -a > & camx.02${TODAY[$i]}.$RUN.stdout
#/bin/time $EXEC | & tee camx_v4.11s.02${TODAY[$i]}.$RUN.stdout
./CAMx.StLouis60.pg_linuxomp | & tee camx_v4.30.02${TODAY[$i]}.$RUN.stdout
rm -f CAMx.in
#date   >>&  CAMx_v4.11s.$RUN.${TODAY[$i]}.stdout

#
end
```

July 2002 Final Basecase (Typical)
camx.jul02.baseDm2.CMAQ.kvpatch.mech4noPM.typical

```
#!/bin/csh
#
#   Script to Run CAMx
#
# Environment variables and executable for parallel processing on
# a dual-processor Linux workstation with Portland Group compiler
#
setenv NCPUS 2
setenv MPSTKZ 128M
limit stacksize unlimited
#
set RUN     = "St_LouisBaseD"
set EXEC    = "CAMx.StLouis60.pg_linuxomp"
set INPUT   = "/raid2a/ENVIRON"
set MET     = "/raid1b/MM5CAMx/Jul2-16b2"
set EMIS    = "/raid2a/base4_typ_emiss_jul_camx/merged"
set PTSRCE  = "/raid2a/base4_typ_emiss_jul_camx/merged"
set OTHER  = "../../../inputs"
#set OUTPUT  = "/raid2b/CAMx/outputs/redhat5/jun02b/OB70"
set OUTPUT =
"/model/CAMx/outputs/v4.30/jul02dm2/mech4noPM/CMAQ.kvpatch/typical"

mkdir -p ./$RUN
cp $EXEC ./$RUN
cd ./$RUN

#mkdir -p $OUTPUT

#set TODAY = (0729 0730 0731 0801 0802 0803 0804 0805)
set TODAY = (0702 0703 0704 0705 0706 0707 0708 0709 0710 0711 0712 0713 0714
0715 0716)
set YYYYMMDD =(20020702 20020703 20020704 20020705 20020706 20020707 20020708
20020709 20020710 20020711 20020712 20020713 20020714 20020715 20020716)
#set YYYYMMDD = (20020729 20020730 20020731 20020801 20020802 20020803
20020804 20020805)
#set JULIAN = (210 211 212 213 214 215 216 217)
set JULIAN = (183 184 185 186 187 188 189 190 191 192 193 194 195 196 197)

foreach i (1 2 3 4 5 6 7 8 9 10 11 12 13 14 15)
#foreach i (1 2 3 4 5 6 7 8)
  @ MO = $TODAY[$i] / 100
  @ DAY = $TODAY[$i] - ($MO * 100)
if ($i == 1) then
  set RESTART = "false"
  set IC = "$INPUT/icbc/ic_bc_tc_for_camx/episode_4/ic.stl36k.2002183.CAMx"
  @ im1 = $i
  set START = "2002,07,02,0000"
else
  set RESTART = "true"
  set IC =  " "
  @ im1 = ($i - 1)
  set START = "2002,$MO,$DAY,0000"
endif

cat << ieof > CAMx.in
 &CAMx_Control
```

```
 Run_Message      = 'CAMx v4.30 July 2002 BaseD Typical CMAQ.kvp
Mech4.noPM.PiG',

!--- Model clock control ---

 Time_Zone        = 0,                 ! (0=UTC,5=EST,6=CST,7=MST,8=PST)
 Restart          = .$RESTART.,
 Start_Date_Hour  = $START,  ! (YYYY,MM,DD,HHmm)
 End_Date_Hour    = 2002,0$MO,$DAY,2400,   ! (YYYY,MM,DD,HHmm)

 Maximum_Timestep    = 15.,            ! minutes
 Met_Input_Frequency = 60.,            ! minutes
 Ems_Input_Frequency = 60.,            ! minutes
 Output_Frequency    = 60.,            ! minutes

!--- Map projection parameters ---

 Map_Projection           = 'LAMBERT', ! (LAMBERT,POLAR,UTM,LATLON)
 UTM_Zone                 = 0,
 POLAR_Longitude_Pole     = -100.,     ! deg (west<0,south<0)
 POLAR_Latitude_Pole      =  40.,      ! deg (west<0,south<0)
 LAMBERT_Center_Longitude = -97.,      ! deg (west<0,south<0)
 LAMBERT_Center_Latitude  =  40.,      ! deg (west<0,south<0)
 LAMBERT_True_Latitude1   =  33.,      ! deg (west<0,south<0)
 LAMBERT_True_Latitude2   =  45.,      ! deg (west<0,south<0)

!--- Parameters for the master (first) grid ---

 Number_of_Grids      = 3,
 Master_Origin_XCoord = -2736.,        ! km or deg, SW corner of cell(1,1)
 Master_Origin_YCoord = -2088.,        ! km or deg, SW corner of cell (1,1)
 Master_Cell_XSize    = 36.,           ! km or deg
 Master_Cell_YSize    = 36.,           ! km or deg
 Master_Grid_Columns  = 148,
 Master_Grid_Rows     = 112,
 Number_of_Layers(1)  = 16,

!--- Parameters for the second grid ---

 Nest_Meshing_Factor(2) = 3,           ! Cell size relative to master grid
 Nest_Beg_I_Index(2)    = 59,          ! Relative to master grid
 Nest_End_I_Index(2)    = 125,         ! Relative to master grid
 Nest_Beg_J_Index(2)    = 22,          ! Relative to master grid
 Nest_End_J_Index(2)    = 87,          ! Relative to master grid
 Number_of_Layers(2)    = 16,

!--- Parameters for the third grid ---

 Nest_Meshing_Factor(3) = 9,           ! Cell size relative to master grid
 Nest_Beg_I_Index(3)    = 79,          ! Relative to master grid
 Nest_End_I_Index(3)    = 106,        ! Relative to master grid
 Nest_Beg_J_Index(3)    = 43,          ! Relative to master grid
 Nest_End_J_Index(3)    = 66,          ! Relative to master grid
 Number_of_Layers(3)    = 16,

!--- Model options ---

 Diagnostic_Error_Check = .false.,      ! True = will stop after 1st timestep
 Advection_Solver       = 'PPM',       ! (PPM,BOTT)
```

```
 Chemistry_Solver       = 'CMC',        ! (CMC,IEH,LSODE)
 PiG_Submodel           = 'GREASD',     ! (None,GREASD,IRON)
 Probing_Tool           = 'None',       !
(None,OSAT,PSAT,GOAT,APCA,DDM,PA,RTRAC)
 Chemistry              = .true.,
 Dry_Deposition         = .true.,
 Wet_Deposition         = .true.,
 Staggered_Winds        = .true.,
 Gridded_Emissions      = .true.,
 Point_Emissions        = .true.,
 Ignore_Emission_Dates  = .true.,

!--- Output specifications ---

 Root_Output_Name         = '$OUTPUT/camx.02${TODAY[$i]}.$RUN',
 Average_Output_3D        = .false.,
 HDF_Format_Output        = .false.,
 HDF_File_Root            = '$OUTPUT/camx.02${TODAY[$i]}.$RUN.hdf',
 Number_of_Output_Species = 16,
 Output_Species_Names(1)  = 'NO  ',
 Output_Species_Names(2)  = 'NO2 ',
 Output_Species_Names(3)  = 'O3  ',
 Output_Species_Names(4)  = 'SO2 ',
 Output_Species_Names(5)  = 'PAR ',
 Output_Species_Names(6)  = 'TOL ',
 Output_Species_Names(7)  = 'ETH ',
 Output_Species_Names(8)  = 'OLE ',
 Output_Species_Names(9)  = 'PAN ',
 Output_Species_Names(10) = 'ISOP',
 Output_Species_Names(11) = 'XYL ',
 Output_Species_Names(12) = 'FORM',
 Output_Species_Names(13) = 'ALD2',
 Output_Species_Names(14) = 'HNO3',
 Output_Species_Names(15) = 'NXOY',
 Output_Species_Names(16) = 'CO  ',

!--- Input files ---

 Chemistry_Parameters = '/model/CAMx/v4.30/inputs/CAMx4.3.chemparam.4_NONE',
 Photolyis_Rates      = '$INPUT/camx_inputs/rates/no_snow/02jul-
16jul/rates.camx.020709.361204.base1',
 Initial_Conditions   = '$IC',
 Boundary_Conditions  =
'$INPUT/icbc/ic_bc_tc_for_camx/episode_4/bc.stl36k.2002${JULIAN[$i]}.CAMx',
 Top_Concentrations   =
'$INPUT/icbc/ic_bc_tc_for_camx/episode_4/topc.stl36k.2002183.CAMx',
 Albedo_Haze_Ozone    = '$INPUT/camx_inputs/ahoz.orig/no_snow/02jul-
16jul/ahoz.camx.02jul-16jul.361204.base1.mdnr',
 Point_Sources        = '$PTSRCE/ptsrce.pig.2002${TODAY[$i]}.base4T.bin',
 Master_Grid_Restart  = '$OUTPUT/camx.02${TODAY[$im1]}.$RUN.inst.2',
 Nested_Grid_Restart  = '$OUTPUT/camx.02${TODAY[$im1]}.$RUN.finst.2',
 PiG_Restart          = '$OUTPUT/camx.02${TODAY[$im1]}.$RUN.pig',

 Landuse_Grid(1) = '$INPUT/camx_inputs/landuse/lu.stlouis.36km.bin',
 Landuse_Grid(2) = '$INPUT/camx_inputs/landuse/lu.stlouis.12km.bin',
 Landuse_Grid(3) = '$INPUT/camx_inputs/landuse/lu.stlouis.04km.bin',
 ZP_Grid(1)      = '$MET/pres.camx.02${TODAY[$i]}.natl.36.base2',
 ZP_Grid(2)      = '$MET/pres.camx.02${TODAY[$i]}.CRAP.12.base2',
 ZP_Grid(3)      = '$MET/pres.camx.02${TODAY[$i]}.SLOP.4.base2',
 Wind_Grid(1)    = '$MET/wind.camx.02${TODAY[$i]}.natl.36.base2',
```

```
 Wind_Grid(2)    = '$MET/wind.camx.02${TODAY[$i]}.CRAP.12.base2',
 Wind_Grid(3)    = '$MET/wind.camx.02${TODAY[$i]}.SLOP.4.base2',
 Temp_Grid(1)    = '$MET/temp.camx.02${TODAY[$i]}.natl.36.base2',
 Temp_Grid(2)    = '$MET/temp.camx.02${TODAY[$i]}.CRAP.12.base2',
 Temp_Grid(3)    = '$MET/temp.camx.02${TODAY[$i]}.SLOP.4.base2',
 Vapor_Grid(1)   = '$MET/wvap.camx.02${TODAY[$i]}.natl.36.base2',
 Vapor_Grid(2)   = '$MET/wvap.camx.02${TODAY[$i]}.CRAP.12.base2',
 Vapor_Grid(3)   = '$MET/wvap.camx.02${TODAY[$i]}.SLOP.4.base2',
 Cloud_Grid(1)   = '$MET/clra.camx.02${TODAY[$i]}.natl.36.base2.v4.30',
 Cloud_Grid(2)   = '$MET/clra.camx.02${TODAY[$i]}.CRAP.12.base2.v4.30',
 Cloud_Grid(3)   = '$MET/clra.camx.02${TODAY[$i]}.SLOP.4.base2.v4.30',
 Kv_Grid(1)      =
'$MET/vdif.camx.02${TODAY[$i]}.natl.36.base2.CMAQ.kvpatch',
 Kv_Grid(2)      =
'$MET/vdif.camx.02${TODAY[$i]}.CRAP.12.base2.CMAQ.kvpatch',
 Kv_Grid(3)      = '$MET/vdif.camx.02${TODAY[$i]}.SLOP.4.base2.CMAQ.kvpatch',
 Emiss_Grid(1)   = '$EMIS/emiss_low.base4T.stl36km.2002${TODAY[$i]}.CAMx',
 Emiss_Grid(2)   =
'$EMIS/emiss_low.base4T.stl12km_photo.2002${TODAY[$i]}.CAMx',
 Emiss_Grid(3)   = '$EMIS/emiss_low.base4T.stl4km.2002${TODAY[$i]}.CAMx',

 &
! No probing tools for this run.  Everything below this line is not used.
!-----------------------------------------------------------------------------
---
 &SA_Control

 SA_File_Root              = 'CAMx4.test.020614',
 SA_Summary_Output         = .true.,

 SA_Master_Sfc_Output         = .true.,
 SA_Nested_Sfc_Output         = .true.,
 SA_Stratify_Boundary         = .true.,
 SA_Number_of_Source_Regions  = 10,
 SA_Number_of_Source_Groups   = 3,
 Use_Leftover_Group           = .false.,
 Number_of_Timing_Releases    = 0,
 PSAT_Treat_SULFATE_Class     = .false.,
 PSAT_Treat_NITRATE_Class     = .true.,
 PSAT_Treat_SOA_Class         = .false.,
 PSAT_Treat_PRIMARY_Class     = .false.,
 PSAT_Treat_MERCURY_Class     = .false.,
 PSAT_Treat_OZONE_Class       = .false.,

 SA_Receptor_Definitions  = 'osat.rcp.def.dat',
 SA_Source_Area_Map(1)    = 'osat.src.area.map.g1',
 SA_Source_Area_Map(2)    = 'osat.src.area.map.g2',
 SA_Source_Area_Map(3)    = 'osat.src.area.map.g3',

 SA_Master_Restart        = 'CAMx4.test.020614.osat.inst.2',
 SA_Nested_Restart        = 'CAMx4.test.020614.osat.finst.2',

 SA_Points_Group(1)       = 'ptsrc.utils.020614.bin',
 SA_Points_Group(3)       = 'ptsrc.other.020614.bin',

 SA_Emiss_Group_Grid(1,1) = 'emiss.utils_low.020614.36km.bin',
 SA_Emiss_Group_Grid(1,2) = 'emiss.utils_low.020614.12km.bin',
 SA_Emiss_Group_Grid(1,3) = 'emiss.utils_low.020614.04km.bin',
 SA_Emiss_Group_Grid(2,1) = 'emiss.mv.020614.36km.bin',
 SA_Emiss_Group_Grid(2,2) = 'emiss.mv.020614.12km.bin',
```

```
 SA_Emiss_Group_Grid(2,3) = 'emiss.mv.020614.04km.bin',
 SA_Emiss_Group_Grid(3,1) = 'emiss.other.020614.36km.bin',
 SA_Emiss_Group_Grid(3,2) = 'emiss.other.020614.12km.bin',
 SA_Emiss_Group_Grid(3,3) = 'emiss.other.020614.04km.bin',

 &
!-----------------------------------------------------------------------------
---
 &DDM_Control

 DDM_File_Root                = 'CAMx4.test.020614',
 DDM_Master_Sfc_Output        = .true.,
 DDM_Nested_Sfc_Output        = .true.,
 DDM_Stratify_Boundary        = .true.,
 DDM_Number_of_Source_Regions = 10,
 DDM_Number_of_Source_Groups  = 3,

 Number_of_IC_Species_Groups = 1,
 IC_Species_Groups(1)        = 'O3',
 Number_of_BC_Species_Groups = 1,
 BC_species_Groups(1)        = 'O3',
 Number_of_EM_Species_Groups = 2,
 Emis_Species_Groups(1)      = 'O3',
 Emis_Species_Groups(2)      = 'NOX',

 DDM_Receptor_Definitions  = 'ddm.rcp.def.dat',
 DDM_Source_Area_Map(1)    = 'ddm.src.area.map.g1',
 DDM_Source_Area_Map(2)    = 'ddm.src.area.map.g2',
 DDM_Source_Area_Map(3)    = 'ddm.src.area.map.g3',

 DDM_Initial_Conditions    = 'ic.generic.bin',
 DDM_Boundary_Conditions   = 'bc.generic.bin',
 DDM_Top_Concentrations    = 'tc.generic',
 DDM_Master_Restart        = 'CAMx4.test.020614.ddm.inst.2',
 DDM_Nested_Restart        = 'CAMx4.test.020614.ddm.finst.2',

 DDM_Points_Group(1)       = 'ptsrc.utils.020614.bin',
 DDM_Points_Group(3)       = 'ptsrc.other.020614.bin',

 DDM_Emiss_Group_Grid(1,1) = 'emiss.utils_low.020614.36km.bin',
 DDM_Emiss_Group_Grid(1,2) = 'emiss.utils_low.020614.36km.bin',
 DDM_Emiss_Group_Grid(1,3) = 'emiss.utils_low.020614.36km.bin',
 DDM_Emiss_Group_Grid(2,1) = 'emiss.mv.020614.36km.bin',
 DDM_Emiss_Group_Grid(2,2) = 'emiss.mv.020614.36km.bin',
 DDM_Emiss_Group_Grid(2,3) = 'emiss.mv.020614.36km.bin',
 DDM_Emiss_Group_Grid(3,1) = 'emiss.other.020614.36km.bin',
 DDM_Emiss_Group_Grid(3,2) = 'emiss.other.020614.36km.bin',
 DDM_Emiss_Group_Grid(3,3) = 'emiss.other.020614.36km.bin',

 &
!-----------------------------------------------------------------------------
---
 &RT_Control

 RT_File_Root            = 'CAMx4.test.020614',

 RT_Initial_Conditions   = ' ',
 RT_Boundary_Conditions  = ' ',
 RT_Top_Concentrations   = ' ',
 RT_Master_Restart       = 'CAMx4.test.020614.rtrac.inst.2',
```

```
 RT_Nested_Restart       = 'CAMx4.test.020614.rtrac.finst.2',

 Sampling_Grid            = .true.,
 Number_of_Sampling_Grids = 1,
 SG_Beg_I_Index(1)        = 17,            ! Relative to master grid
 SG_End_I_Index(1)        = 18,
 SG_Beg_J_Index(1)        = 21,
 SG_End_J_Index(1)        = 22,
 SG_Mesh_Factor(1)        = 36.,           ! Cell size relative to master
grid

 RT_Chemistry_Parameters = 'CAMx4.chemparam.rtrac_test',
 RT_Receptor_Definitions = 'receptor.rtrac.test',
 RT_Point_Sources        = 'pt.rtrac.test',
 RT_Emiss_Grid(1)        = 'emiss.rtrac.36km',
 RT_Emiss_Grid(2)        = 'emiss.rtrac.12km',
 RT_Emiss_Grid(3)        = 'emiss.rtrac.04km',

 &
!-----------------------------------------------------------------------------
---
 &PA_Control

 PA_File_Root         = 'CAMx4.test.020614',

 Number_of_PA_Domains = 2,
 Within_CAMx_Grid(1)  = 1,  ! Specify which CAMx grid that this PA domain is
in
 PA_Beg_I_Index(1)    = 8,
 PA_End_I_Index(1)    = 12,
 PA_Beg_J_Index(1)    = 9,
 PA_End_J_Index(1)    = 13,
 PA_Beg_K_Index(1)    = 1,
 PA_End_K_Index(1)    = 5,

 Within_CAMx_Grid(2)  = 3,  ! Specify which CAMx grid that this PA domain is
in
 PA_Beg_I_Index(2)    = 107,
 PA_End_I_Index(2)    = 110,
 PA_Beg_J_Index(2)    = 78,
 PA_End_J_Index(2)    = 82,
 PA_Beg_K_Index(2)    = 1,
 PA_End_K_Index(2)    = 7,

 &
ieof

cp CAMx.in CAMx.in.02${TODAY[$i]}
uname -a > & camx.02${TODAY[$i]}.$RUN.stdout
#/bin/time $EXEC | & tee camx_v4.11s.02${TODAY[$i]}.$RUN.stdout
./CAMx.StLouis60.pg_linuxomp | & tee camx_v4.30.02${TODAY[$i]}.$RUN.stdout
rm -f CAMx.in
#date   >>&  CAMx_v4.11s.$RUN.${TODAY[$i]}.stdout

#
end
```

July 2009 Attainment Demonstration
camx.jul02.Dm209OTB.CMAQ.kvpatch.mech4noPM_correct

```
#!/bin/csh
#
#   Script to Run CAMx
#
# Environment variables and executable for parallel processing on
# a dual-processor Linux workstation with Portland Group compiler
#
setenv NCPUS 2
setenv MPSTKZ 128M
limit stacksize unlimited
#
set RUN     = "St_LouisD09OTB_correct"
set EXEC    = "CAMx.StLouis60.pg_linuxomp"
set INPUT   = "/raid2a/ENVIRON"
set MET     = "/raid1b/MM5CAMx/Jul2-16b2"
set EMIS    = "/raid2a/base4_emiss_jul_camx_09_OTB_ptne-ar_correction/merged"
set PTSRCE  = "/raid2a/base4_emiss_jul_camx_09_OTB_ptne-ar_correction/merged"
set OTHER  = "../../../inputs"
#set OUTPUT  = "/raid2b/CAMx/outputs/redhat5/jun02b/OB70"
set OUTPUT =
"/model/CAMx/outputs/v4.30/jul02dm2/2009OTB_correct/mech4noPM/CMAQ.kvpatch"

mkdir -p ./$RUN
cp $EXEC ./$RUN
cd ./$RUN

#mkdir -p $OUTPUT

#set TODAY = (0729 0730 0731 0801 0802 0803 0804 0805)
set TODAY = (0702 0703 0704 0705 0706 0707 0708 0709 0710 0711 0712 0713 0714
0715 0716)
set YYYYMMDD =(20020702 20020703 20020704 20020705 20020706 20020707 20020708
20020709 20020710 20020711 20020712 20020713 20020714 20020715 20020716)
#set YYYYMMDD = (20020729 20020730 20020731 20020801 20020802 20020803
20020804 20020805)
#set JULIAN = (210 211 212 213 214 215 216 217)
set JULIAN = (183 184 185 186 187 188 189 190 191 192 193 194 195 196 197)

foreach i (1 2 3 4 5 6 7 8 9 10 11 12 13 14 15)
#foreach i (1 2 3 4 5 6 7 8)
  @ MO = $TODAY[$i] / 100
  @ DAY = $TODAY[$i] - ($MO * 100)
if ($i == 1) then
  set RESTART = "false"
  set IC = "$INPUT/icbc/ic_bc_tc_for_camx/episode_4/ic.stl36k.2002183.CAMx"
  @ im1 = $i
  set START = "2002,07,02,0000"
else
  set RESTART = "true"
  set IC =  " "
  @ im1 = ($i - 1)
  set START = "2002,$MO,$DAY,0000"
endif

cat << ieof > CAMx.in
 &CAMx_Control
```

```
 Run_Message      = 'CAMx v4.30 July 2002 D09OTB Area & Point Corrections
CMAQ.kvp Mech4.noPM.PiG',

!--- Model clock control ---

 Time_Zone        = 0,                  ! (0=UTC,5=EST,6=CST,7=MST,8=PST)
 Restart          = .$RESTART.,
 Start_Date_Hour  = $START,  ! (YYYY,MM,DD,HHmm)
 End_Date_Hour    = 2002,0$MO,$DAY,2400,   ! (YYYY,MM,DD,HHmm)

 Maximum_Timestep    = 15.,             ! minutes
 Met_Input_Frequency = 60.,             ! minutes
 Ems_Input_Frequency = 60.,             ! minutes
 Output_Frequency    = 60.,             ! minutes

!--- Map projection parameters ---

 Map_Projection           = 'LAMBERT', ! (LAMBERT,POLAR,UTM,LATLON)
 UTM_Zone                 = 0,
 POLAR_Longitude_Pole     = -100.,     ! deg (west<0,south<0)
 POLAR_Latitude_Pole      =  40.,      ! deg (west<0,south<0)
 LAMBERT_Center_Longitude = -97.,      ! deg (west<0,south<0)
 LAMBERT_Center_Latitude  =  40.,      ! deg (west<0,south<0)
 LAMBERT_True_Latitude1   =  33.,      ! deg (west<0,south<0)
 LAMBERT_True_Latitude2   =  45.,      ! deg (west<0,south<0)

!--- Parameters for the master (first) grid ---

 Number_of_Grids      = 3,
 Master_Origin_XCoord = -2736.,        ! km or deg, SW corner of cell(1,1)
 Master_Origin_YCoord = -2088.,        ! km or deg, SW corner of cell (1,1)
 Master_Cell_XSize    = 36.,           ! km or deg
 Master_Cell_YSize    = 36.,           ! km or deg
 Master_Grid_Columns  = 148,
 Master_Grid_Rows     = 112,
 Number_of_Layers(1)  = 16,

!--- Parameters for the second grid ---

 Nest_Meshing_Factor(2) = 3,           ! Cell size relative to master grid
 Nest_Beg_I_Index(2)    = 59,          ! Relative to master grid
 Nest_End_I_Index(2)    = 125,         ! Relative to master grid
 Nest_Beg_J_Index(2)    = 22,          ! Relative to master grid
 Nest_End_J_Index(2)    = 87,          ! Relative to master grid
 Number_of_Layers(2)    = 16,

!--- Parameters for the third grid ---

 Nest_Meshing_Factor(3) = 9,           ! Cell size relative to master grid
 Nest_Beg_I_Index(3)    = 79,          ! Relative to master grid
 Nest_End_I_Index(3)    = 106,        ! Relative to master grid
 Nest_Beg_J_Index(3)    = 43,          ! Relative to master grid
 Nest_End_J_Index(3)    = 66,          ! Relative to master grid
 Number_of_Layers(3)    = 16,

!--- Model options ---

 Diagnostic_Error_Check = .false.,      ! True = will stop after 1st timestep
 Advection_Solver       = 'PPM',       ! (PPM,BOTT)
```

```
 Chemistry_Solver       = 'CMC',        ! (CMC,IEH,LSODE)
 PiG_Submodel           = 'GREASD',     ! (None,GREASD,IRON)
 Probing_Tool           = 'None',       !
(None,OSAT,PSAT,GOAT,APCA,DDM,PA,RTRAC)
 Chemistry              = .true.,
 Dry_Deposition         = .true.,
 Wet_Deposition         = .true.,
 Staggered_Winds        = .true.,
 Gridded_Emissions      = .true.,
 Point_Emissions        = .true.,
 Ignore_Emission_Dates  = .true.,

!--- Output specifications ---

 Root_Output_Name         = '$OUTPUT/camx.02${TODAY[$i]}.$RUN',
 Average_Output_3D        = .false.,
 HDF_Format_Output        = .false.,
 HDF_File_Root            = '$OUTPUT/camx.02${TODAY[$i]}.$RUN.hdf',
 Number_of_Output_Species = 16,
 Output_Species_Names(1)  = 'NO  ',
 Output_Species_Names(2)  = 'NO2 ',
 Output_Species_Names(3)  = 'O3  ',
 Output_Species_Names(4)  = 'SO2 ',
 Output_Species_Names(5)  = 'PAR ',
 Output_Species_Names(6)  = 'TOL ',
 Output_Species_Names(7)  = 'ETH ',
 Output_Species_Names(8)  = 'OLE ',
 Output_Species_Names(9)  = 'PAN ',
 Output_Species_Names(10) = 'ISOP',
 Output_Species_Names(11) = 'XYL ',
 Output_Species_Names(12) = 'FORM',
 Output_Species_Names(13) = 'ALD2',
 Output_Species_Names(14) = 'HNO3',
 Output_Species_Names(15) = 'NXOY',
 Output_Species_Names(16) = 'CO  ',

!--- Input files ---

 Chemistry_Parameters = '/model/CAMx/v4.30/inputs/CAMx4.3.chemparam.4_NONE',
 Photolyis_Rates      = '$INPUT/camx_inputs/rates/no_snow/02jul-
16jul/rates.camx.020709.361204.base1',
 Initial_Conditions   = '$IC',
 Boundary_Conditions  =
'$INPUT/icbc/ic_bc_tc_for_camx/episode_4/bc.stl36k.2002${JULIAN[$i]}.CAMx',
 Top_Concentrations   =
'$INPUT/icbc/ic_bc_tc_for_camx/episode_4/topc.stl36k.2002183.CAMx',
 Albedo_Haze_Ozone    = '$INPUT/camx_inputs/ahoz.orig/no_snow/02jul-
16jul/ahoz.camx.02jul-16jul.361204.base1.mdnr',
 Point_Sources        =
'$PTSRCE/ptsrce.pig.2002${TODAY[$i]}.base4T_09_OTB.NOxSIP.bin',
 Master_Grid_Restart  = '$OUTPUT/camx.02${TODAY[$im1]}.$RUN.inst.2',
 Nested_Grid_Restart  = '$OUTPUT/camx.02${TODAY[$im1]}.$RUN.finst.2',
 PiG_Restart          = '$OUTPUT/camx.02${TODAY[$im1]}.$RUN.pig',

 Landuse_Grid(1) = '$INPUT/camx_inputs/landuse/lu.stlouis.36km.bin',
 Landuse_Grid(2) = '$INPUT/camx_inputs/landuse/lu.stlouis.12km.bin',
 Landuse_Grid(3) = '$INPUT/camx_inputs/landuse/lu.stlouis.04km.bin',
 ZP_Grid(1)      = '$MET/pres.camx.02${TODAY[$i]}.natl.36.base2',
 ZP_Grid(2)      = '$MET/pres.camx.02${TODAY[$i]}.CRAP.12.base2',
 ZP_Grid(3)      = '$MET/pres.camx.02${TODAY[$i]}.SLOP.4.base2',
```

```
 Wind_Grid(1)    = '$MET/wind.camx.02${TODAY[$i]}.natl.36.base2',
 Wind_Grid(2)    = '$MET/wind.camx.02${TODAY[$i]}.CRAP.12.base2',
 Wind_Grid(3)    = '$MET/wind.camx.02${TODAY[$i]}.SLOP.4.base2',
 Temp_Grid(1)    = '$MET/temp.camx.02${TODAY[$i]}.natl.36.base2',
 Temp_Grid(2)    = '$MET/temp.camx.02${TODAY[$i]}.CRAP.12.base2',
 Temp_Grid(3)    = '$MET/temp.camx.02${TODAY[$i]}.SLOP.4.base2',
 Vapor_Grid(1)   = '$MET/wvap.camx.02${TODAY[$i]}.natl.36.base2',
 Vapor_Grid(2)   = '$MET/wvap.camx.02${TODAY[$i]}.CRAP.12.base2',
 Vapor_Grid(3)   = '$MET/wvap.camx.02${TODAY[$i]}.SLOP.4.base2',
 Cloud_Grid(1)   = '$MET/clra.camx.02${TODAY[$i]}.natl.36.base2.v4.30',
 Cloud_Grid(2)   = '$MET/clra.camx.02${TODAY[$i]}.CRAP.12.base2.v4.30',
 Cloud_Grid(3)   = '$MET/clra.camx.02${TODAY[$i]}.SLOP.4.base2.v4.30',
 Kv_Grid(1)      =
'$MET/vdif.camx.02${TODAY[$i]}.natl.36.base2.CMAQ.kvpatch',
 Kv_Grid(2)      =
'$MET/vdif.camx.02${TODAY[$i]}.CRAP.12.base2.CMAQ.kvpatch',
 Kv_Grid(3)      = '$MET/vdif.camx.02${TODAY[$i]}.SLOP.4.base2.CMAQ.kvpatch',
 Emiss_Grid(1)   =
'$EMIS/emiss_low.base4T_09_OTB.stl36km.C.2002${TODAY[$i]}.CAMx',
 Emiss_Grid(2)   =
'$EMIS/emiss_low.base4T_09_OTB.stl12km.C_photo.2002${TODAY[$i]}.CAMx',
 Emiss_Grid(3)   =
'$EMIS/emiss_low.base4T_09_OTB.stl4km.C.2002${TODAY[$i]}.CAMx',

 &
! No probing tools for this run.  Everything below this line is not used.
!-----------------------------------------------------------------------------
---
 &SA_Control

 SA_File_Root              = 'CAMx4.test.020614',
 SA_Summary_Output         = .true.,

 SA_Master_Sfc_Output         = .true.,
 SA_Nested_Sfc_Output         = .true.,
 SA_Stratify_Boundary         = .true.,
 SA_Number_of_Source_Regions  = 10,
 SA_Number_of_Source_Groups   = 3,
 Use_Leftover_Group           = .false.,
 Number_of_Timing_Releases    = 0,
 PSAT_Treat_SULFATE_Class     = .false.,
 PSAT_Treat_NITRATE_Class     = .true.,
 PSAT_Treat_SOA_Class         = .false.,
 PSAT_Treat_PRIMARY_Class     = .false.,
 PSAT_Treat_MERCURY_Class     = .false.,
 PSAT_Treat_OZONE_Class       = .false.,

 SA_Receptor_Definitions  = 'osat.rcp.def.dat',
 SA_Source_Area_Map(1)    = 'osat.src.area.map.g1',
 SA_Source_Area_Map(2)    = 'osat.src.area.map.g2',
 SA_Source_Area_Map(3)    = 'osat.src.area.map.g3',

 SA_Master_Restart        = 'CAMx4.test.020614.osat.inst.2',
 SA_Nested_Restart        = 'CAMx4.test.020614.osat.finst.2',

 SA_Points_Group(1)       = 'ptsrc.utils.020614.bin',
 SA_Points_Group(3)       = 'ptsrc.other.020614.bin',

 SA_Emiss_Group_Grid(1,1) = 'emiss.utils_low.020614.36km.bin',
 SA_Emiss_Group_Grid(1,2) = 'emiss.utils_low.020614.12km.bin',
```

```
 SA_Emiss_Group_Grid(1,3) = 'emiss.utils_low.020614.04km.bin',
 SA_Emiss_Group_Grid(2,1) = 'emiss.mv.020614.36km.bin',
 SA_Emiss_Group_Grid(2,2) = 'emiss.mv.020614.12km.bin',
 SA_Emiss_Group_Grid(2,3) = 'emiss.mv.020614.04km.bin',
 SA_Emiss_Group_Grid(3,1) = 'emiss.other.020614.36km.bin',
 SA_Emiss_Group_Grid(3,2) = 'emiss.other.020614.12km.bin',
 SA_Emiss_Group_Grid(3,3) = 'emiss.other.020614.04km.bin',

 &
!-----------------------------------------------------------------------------
---
 &DDM_Control

 DDM_File_Root                = 'CAMx4.test.020614',
 DDM_Master_Sfc_Output        = .true.,
 DDM_Nested_Sfc_Output        = .true.,
 DDM_Stratify_Boundary        = .true.,
 DDM_Number_of_Source_Regions = 10,
 DDM_Number_of_Source_Groups  = 3,

 Number_of_IC_Species_Groups = 1,
 IC_Species_Groups(1)        = 'O3',
 Number_of_BC_Species_Groups = 1,
 BC_species_Groups(1)        = 'O3',
 Number_of_EM_Species_Groups = 2,
 Emis_Species_Groups(1)      = 'O3',
 Emis_Species_Groups(2)      = 'NOX',

 DDM_Receptor_Definitions  = 'ddm.rcp.def.dat',
 DDM_Source_Area_Map(1)    = 'ddm.src.area.map.g1',
 DDM_Source_Area_Map(2)    = 'ddm.src.area.map.g2',
 DDM_Source_Area_Map(3)    = 'ddm.src.area.map.g3',

 DDM_Initial_Conditions    = 'ic.generic.bin',
 DDM_Boundary_Conditions   = 'bc.generic.bin',
 DDM_Top_Concentrations    = 'tc.generic',
 DDM_Master_Restart        = 'CAMx4.test.020614.ddm.inst.2',
 DDM_Nested_Restart        = 'CAMx4.test.020614.ddm.finst.2',

 DDM_Points_Group(1)       = 'ptsrc.utils.020614.bin',
 DDM_Points_Group(3)       = 'ptsrc.other.020614.bin',

 DDM_Emiss_Group_Grid(1,1) = 'emiss.utils_low.020614.36km.bin',
 DDM_Emiss_Group_Grid(1,2) = 'emiss.utils_low.020614.36km.bin',
 DDM_Emiss_Group_Grid(1,3) = 'emiss.utils_low.020614.36km.bin',
 DDM_Emiss_Group_Grid(2,1) = 'emiss.mv.020614.36km.bin',
 DDM_Emiss_Group_Grid(2,2) = 'emiss.mv.020614.36km.bin',
 DDM_Emiss_Group_Grid(2,3) = 'emiss.mv.020614.36km.bin',
 DDM_Emiss_Group_Grid(3,1) = 'emiss.other.020614.36km.bin',
 DDM_Emiss_Group_Grid(3,2) = 'emiss.other.020614.36km.bin',
 DDM_Emiss_Group_Grid(3,3) = 'emiss.other.020614.36km.bin',

 &
!-----------------------------------------------------------------------------
---
 &RT_Control

 RT_File_Root            = 'CAMx4.test.020614',

 RT_Initial_Conditions   = ' ',
```

```
 RT_Boundary_Conditions  = ' ',
 RT_Top_Concentrations   = ' ',
 RT_Master_Restart       = 'CAMx4.test.020614.rtrac.inst.2',
 RT_Nested_Restart       = 'CAMx4.test.020614.rtrac.finst.2',

 Sampling_Grid            = .true.,
 Number_of_Sampling_Grids = 1,
 SG_Beg_I_Index(1)        = 17,            ! Relative to master grid
 SG_End_I_Index(1)        = 18,
 SG_Beg_J_Index(1)        = 21,
 SG_End_J_Index(1)        = 22,
 SG_Mesh_Factor(1)        = 36.,           ! Cell size relative to master
grid

 RT_Chemistry_Parameters = 'CAMx4.chemparam.rtrac_test',
 RT_Receptor_Definitions = 'receptor.rtrac.test',
 RT_Point_Sources        = 'pt.rtrac.test',
 RT_Emiss_Grid(1)        = 'emiss.rtrac.36km',
 RT_Emiss_Grid(2)        = 'emiss.rtrac.12km',
 RT_Emiss_Grid(3)        = 'emiss.rtrac.04km',

 &
!-----------------------------------------------------------------------------
---
 &PA_Control

 PA_File_Root         = 'CAMx4.test.020614',

 Number_of_PA_Domains = 2,
 Within_CAMx_Grid(1)  = 1,  ! Specify which CAMx grid that this PA domain is
in
 PA_Beg_I_Index(1)    = 8,
 PA_End_I_Index(1)    = 12,
 PA_Beg_J_Index(1)    = 9,
 PA_End_J_Index(1)    = 13,
 PA_Beg_K_Index(1)    = 1,
 PA_End_K_Index(1)    = 5,

 Within_CAMx_Grid(2)  = 3,  ! Specify which CAMx grid that this PA domain is
in
 PA_Beg_I_Index(2)    = 107,
 PA_End_I_Index(2)    = 110,
 PA_Beg_J_Index(2)    = 78,
 PA_End_J_Index(2)    = 82,
 PA_Beg_K_Index(2)    = 1,
 PA_End_K_Index(2)    = 7,

 &
ieof

cp CAMx.in CAMx.in.02${TODAY[$i]}
uname -a > & camx.02${TODAY[$i]}.$RUN.stdout
#/bin/time $EXEC | & tee camx_v4.11s.02${TODAY[$i]}.$RUN.stdout
./CAMx.StLouis60.pg_linuxomp | & tee camx_v4.30.02${TODAY[$i]}.$RUN.stdout
rm -f CAMx.in
#date   >>&  CAMx_v4.11s.$RUN.${TODAY[$i]}.stdout

#
end
```

July-August 2002 Final Basecase (Model Performance)
camx.julaug02.baseD.CMAQ.kvpatch.mech4noPM

```
#!/bin/csh
#
#   Script to Run CAMx
#
# Environment variables and executable for parallel processing on
# a dual-processor Linux workstation with Portland Group compiler
#
setenv NCPUS 2
setenv MPSTKZ 128M
limit stacksize unlimited
#
set RUN     = "St_LouisBaseD"
set EXEC    = "CAMx.StLouis60.pg_linuxomp"
set INPUT   = "/raid2a/ENVIRON/camx_inputs"
set MET     = "/raid1a/MM5CAMx/JulyAug"
set EMIS    = "/raid2a/base4_emiss_julaug_camx/merged"
set PTSRCE  = "/raid2a/base4_emiss_julaug_camx/merged"
set OTHER  = "../../../inputs"
#set OUTPUT  = "/raid2b/CAMx/outputs/redhat5/jun02b/OB70"
set OUTPUT = "/model/CAMx/outputs/v4.30/julaug02d/mech4noPM/CMAQ.kvpatch"

mkdir -p ./$RUN
cp $EXEC ./$RUN
cd ./$RUN

#mkdir -p $OUTPUT

set TODAY = (0729 0730 0731 0801 0802 0803 0804 0805)
#set TODAY = (0610 0611 0612 0613 0614 0615 0616 0617 0618 0619 0620 0621
0622 0623 0624)
#set YYYYMMDD =(20020610 20020611 20020612 20020613 20020614 20020615
20020616 20020617 20020618 20020619 20020620 20020621 20020622 20020623
20020624)
set YYYYMMDD = (20020729 20020730 20020731 20020801 20020802 20020803
20020804 20020805)
set JULIAN = (210 211 212 213 214 215 216 217)
#set JULIAN = (161 162 163 164 165 166 167 168 169 170 171 172 173 174 175)

#foreach i (1 2 3 4 5 6 7 8 9 10 11 12 13 14 15)
foreach i (1 2 3 4 5 6 7 8)
  @ MO = $TODAY[$i] / 100
  @ DAY = $TODAY[$i] - ($MO * 100)
if ($i == 1) then
  set RESTART = "false"
  set IC = "$INPUT/icbc/ic.stl36k.2002210.CAMx"
  @ im1 = $i
  set START = "2002,07,29,0000"
else
  set RESTART = "true"
  set IC =  " "
  @ im1 = ($i - 1)
  set START = "2002,$MO,$DAY,0000"
endif

cat << ieof > CAMx.in
 &CAMx_Control
```

```
 Run_Message      = 'CAMx v4.30 July/Aug 2002 D Mech4noPM(PiG) CMAQ.kvpatch',

!--- Model clock control ---

 Time_Zone        = 0,                 ! (0=UTC,5=EST,6=CST,7=MST,8=PST)
 Restart          = .$RESTART.,
 Start_Date_Hour  = $START,  ! (YYYY,MM,DD,HHmm)
 End_Date_Hour    = 2002,0$MO,$DAY,2400,   ! (YYYY,MM,DD,HHmm)

 Maximum_Timestep    = 15.,            ! minutes
 Met_Input_Frequency = 60.,            ! minutes
 Ems_Input_Frequency = 60.,            ! minutes
 Output_Frequency    = 60.,            ! minutes

!--- Map projection parameters ---

 Map_Projection           = 'LAMBERT', ! (LAMBERT,POLAR,UTM,LATLON)
 UTM_Zone                 = 0,
 POLAR_Longitude_Pole     = -100.,     ! deg (west<0,south<0)
 POLAR_Latitude_Pole      =  40.,      ! deg (west<0,south<0)
 LAMBERT_Center_Longitude = -97.,      ! deg (west<0,south<0)
 LAMBERT_Center_Latitude  =  40.,      ! deg (west<0,south<0)
 LAMBERT_True_Latitude1   =  33.,      ! deg (west<0,south<0)
 LAMBERT_True_Latitude2   =  45.,      ! deg (west<0,south<0)

!--- Parameters for the master (first) grid ---

 Number_of_Grids      = 3,
 Master_Origin_XCoord = -2736.,        ! km or deg, SW corner of cell(1,1)
 Master_Origin_YCoord = -2088.,        ! km or deg, SW corner of cell (1,1)
 Master_Cell_XSize    = 36.,           ! km or deg
 Master_Cell_YSize    = 36.,           ! km or deg
 Master_Grid_Columns  = 148,
 Master_Grid_Rows     = 112,
 Number_of_Layers(1)  = 16,

!--- Parameters for the second grid ---

 Nest_Meshing_Factor(2) = 3,           ! Cell size relative to master grid
 Nest_Beg_I_Index(2)    = 59,          ! Relative to master grid
 Nest_End_I_Index(2)    = 125,         ! Relative to master grid
 Nest_Beg_J_Index(2)    = 22,          ! Relative to master grid
 Nest_End_J_Index(2)    = 87,          ! Relative to master grid
 Number_of_Layers(2)    = 16,

!--- Parameters for the third grid ---

 Nest_Meshing_Factor(3) = 9,           ! Cell size relative to master grid
 Nest_Beg_I_Index(3)    = 79,          ! Relative to master grid
 Nest_End_I_Index(3)    = 106,         ! Relative to master grid
 Nest_Beg_J_Index(3)    = 43,          ! Relative to master grid
 Nest_End_J_Index(3)    = 66,          ! Relative to master grid
 Number_of_Layers(3)    = 16,

!--- Model options ---

 Diagnostic_Error_Check = .false.,      ! True = will stop after 1st timestep
 Advection_Solver       = 'PPM',       ! (PPM,BOTT)
 Chemistry_Solver       = 'CMC',       ! (CMC,IEH,LSODE)
```

```
 PiG_Submodel           = 'GREASD',      ! (None,GREASD,IRON)
 Probing_Tool           = 'None',      !
(None,OSAT,PSAT,GOAT,APCA,DDM,PA,RTRAC)
 Chemistry              = .true.,
 Dry_Deposition         = .true.,
 Wet_Deposition         = .true.,
 Staggered_Winds        = .true.,
 Gridded_Emissions      = .true.,
 Point_Emissions        = .true.,
 Ignore_Emission_Dates  = .true.,

!--- Output specifications ---

 Root_Output_Name         = '$OUTPUT/camx.02${TODAY[$i]}.$RUN',
 Average_Output_3D        = .false.,
 HDF_Format_Output        = .false.,
 HDF_File_Root            = '$OUTPUT/camx.02${TODAY[$i]}.$RUN.hdf',
 Number_of_Output_Species = 16,
 Output_Species_Names(1)  = 'NO  ',
 Output_Species_Names(2)  = 'NO2 ',
 Output_Species_Names(3)  = 'O3  ',
 Output_Species_Names(4)  = 'SO2 ',
 Output_Species_Names(5)  = 'PAR ',
 Output_Species_Names(6)  = 'TOL ',
 Output_Species_Names(7)  = 'ETH ',
 Output_Species_Names(8)  = 'OLE ',
 Output_Species_Names(9)  = 'PAN ',
 Output_Species_Names(10) = 'ISOP',
 Output_Species_Names(11) = 'XYL ',
 Output_Species_Names(12) = 'FORM',
 Output_Species_Names(13) = 'ALD2',
 Output_Species_Names(14) = 'HNO3',
 Output_Species_Names(15) = 'NXOY',
 Output_Species_Names(16) = 'NTR ',

!--- Input files ---

 Chemistry_Parameters = '/model/CAMx/v4.30/inputs/CAMx4.3.chemparam.4_NONE',
 Photolyis_Rates      = '$INPUT/rates/no_snow/28jul-
06aug/rates.camx.020803.361204.base1',
 Initial_Conditions   = '$IC',
 Boundary_Conditions  = '$INPUT/icbc/bc.stl36k.2002${JULIAN[$i]}.CAMx',
 Top_Concentrations   = '$INPUT/icbc/topc.stl36k.2002210.CAMx',
 Albedo_Haze_Ozone    = '$INPUT/ahoz.orig/no_snow/28jul-
06aug/ahoz.camx.28jul-06aug.361204.base1.mdnr',
 Point_Sources        = '$PTSRCE/ptsrce.pig.2002${TODAY[$i]}.base4.bin',
 Master_Grid_Restart  = '$OUTPUT/camx.02${TODAY[$im1]}.$RUN.inst.2',
 Nested_Grid_Restart  = '$OUTPUT/camx.02${TODAY[$im1]}.$RUN.finst.2',
 PiG_Restart          = '$OUTPUT/camx.02${TODAY[$im1]}.$RUN.pig',

 Landuse_Grid(1) = '$INPUT/landuse/lu.stlouis.36km.bin',
 Landuse_Grid(2) = '$INPUT/landuse/lu.stlouis.12km.bin',
 Landuse_Grid(3) = '$INPUT/landuse/lu.stlouis.04km.bin',
 ZP_Grid(1)      = '$MET/pres.camx.02${TODAY[$i]}.natl.36.base1',
 ZP_Grid(2)      = '$MET/pres.camx.02${TODAY[$i]}.CRAP.12.base1',
 ZP_Grid(3)      = '$MET/pres.camx.02${TODAY[$i]}.SLOP.4.base1',
 Wind_Grid(1)    = '$MET/wind.camx.02${TODAY[$i]}.natl.36.base1',
 Wind_Grid(2)    = '$MET/wind.camx.02${TODAY[$i]}.CRAP.12.base1',
 Wind_Grid(3)    = '$MET/wind.camx.02${TODAY[$i]}.SLOP.4.base1',
 Temp_Grid(1)    = '$MET/temp.camx.02${TODAY[$i]}.natl.36.base1',
```

```
 Temp_Grid(2)    = '$MET/temp.camx.02${TODAY[$i]}.CRAP.12.base1',
 Temp_Grid(3)    = '$MET/temp.camx.02${TODAY[$i]}.SLOP.4.base1',
 Vapor_Grid(1)   = '$MET/wvap.camx.02${TODAY[$i]}.natl.36.base1',
 Vapor_Grid(2)   = '$MET/wvap.camx.02${TODAY[$i]}.CRAP.12.base1',
 Vapor_Grid(3)   = '$MET/wvap.camx.02${TODAY[$i]}.SLOP.4.base1',
 Cloud_Grid(1)   = '$MET/clra.camx.02${TODAY[$i]}.natl.36.base1.v4.30',
 Cloud_Grid(2)   = '$MET/clra.camx.02${TODAY[$i]}.CRAP.12.base1.v4.30',
 Cloud_Grid(3)   = '$MET/clra.camx.02${TODAY[$i]}.SLOP.4.base1.v4.30',
 Kv_Grid(1)      =
'$MET/vdif.camx.02${TODAY[$i]}.natl.36.base1.CMAQ.kvpatch',
 Kv_Grid(2)      =
'$MET/vdif.camx.02${TODAY[$i]}.CRAP.12.base1.CMAQ.kvpatch',
 Kv_Grid(3)      = '$MET/vdif.camx.02${TODAY[$i]}.SLOP.4.base1.CMAQ.kvpatch',
 Emiss_Grid(1)   = '$EMIS/emiss_low.base4.stl36km.2002${TODAY[$i]}.CAMx',
 Emiss_Grid(2)   =
'$EMIS/emiss_low.base4.stl12km_photo.2002${TODAY[$i]}.CAMx',
 Emiss_Grid(3)   = '$EMIS/emiss_low.base4.stl4km.2002${TODAY[$i]}.CAMx',

 &
! No probing tools for this run.  Everything below this line is not used.
!-----------------------------------------------------------------------------
---
 &SA_Control

 SA_File_Root              = 'CAMx4.test.020614',
 SA_Summary_Output         = .true.,

 SA_Master_Sfc_Output         = .true.,
 SA_Nested_Sfc_Output         = .true.,
 SA_Stratify_Boundary         = .true.,
 SA_Number_of_Source_Regions  = 10,
 SA_Number_of_Source_Groups   = 3,
 Use_Leftover_Group           = .false.,
 Number_of_Timing_Releases    = 0,
 PSAT_Treat_SULFATE_Class     = .false.,
 PSAT_Treat_NITRATE_Class     = .true.,
 PSAT_Treat_SOA_Class         = .false.,
 PSAT_Treat_PRIMARY_Class     = .false.,
 PSAT_Treat_MERCURY_Class     = .false.,
 PSAT_Treat_OZONE_Class       = .false.,

 SA_Receptor_Definitions  = 'osat.rcp.def.dat',
 SA_Source_Area_Map(1)    = 'osat.src.area.map.g1',
 SA_Source_Area_Map(2)    = 'osat.src.area.map.g2',
 SA_Source_Area_Map(3)    = 'osat.src.area.map.g3',

 SA_Master_Restart        = 'CAMx4.test.020614.osat.inst.2',
 SA_Nested_Restart        = 'CAMx4.test.020614.osat.finst.2',

 SA_Points_Group(1)       = 'ptsrc.utils.020614.bin',
 SA_Points_Group(3)       = 'ptsrc.other.020614.bin',

 SA_Emiss_Group_Grid(1,1) = 'emiss.utils_low.020614.36km.bin',
 SA_Emiss_Group_Grid(1,2) = 'emiss.utils_low.020614.12km.bin',
 SA_Emiss_Group_Grid(1,3) = 'emiss.utils_low.020614.04km.bin',
 SA_Emiss_Group_Grid(2,1) = 'emiss.mv.020614.36km.bin',
 SA_Emiss_Group_Grid(2,2) = 'emiss.mv.020614.12km.bin',
 SA_Emiss_Group_Grid(2,3) = 'emiss.mv.020614.04km.bin',
 SA_Emiss_Group_Grid(3,1) = 'emiss.other.020614.36km.bin',
 SA_Emiss_Group_Grid(3,2) = 'emiss.other.020614.12km.bin',
```

```
 SA_Emiss_Group_Grid(3,3) = 'emiss.other.020614.04km.bin',

 &
!-----------------------------------------------------------------------------
---
 &DDM_Control

 DDM_File_Root                = 'CAMx4.test.020614',
 DDM_Master_Sfc_Output        = .true.,
 DDM_Nested_Sfc_Output        = .true.,
 DDM_Stratify_Boundary        = .true.,
 DDM_Number_of_Source_Regions = 10,
 DDM_Number_of_Source_Groups  = 3,

 Number_of_IC_Species_Groups = 1,
 IC_Species_Groups(1)        = 'O3',
 Number_of_BC_Species_Groups = 1,
 BC_species_Groups(1)        = 'O3',
 Number_of_EM_Species_Groups = 2,
 Emis_Species_Groups(1)      = 'O3',
 Emis_Species_Groups(2)      = 'NOX',

 DDM_Receptor_Definitions  = 'ddm.rcp.def.dat',
 DDM_Source_Area_Map(1)    = 'ddm.src.area.map.g1',
 DDM_Source_Area_Map(2)    = 'ddm.src.area.map.g2',
 DDM_Source_Area_Map(3)    = 'ddm.src.area.map.g3',

 DDM_Initial_Conditions    = 'ic.generic.bin',
 DDM_Boundary_Conditions   = 'bc.generic.bin',
 DDM_Top_Concentrations    = 'tc.generic',
 DDM_Master_Restart        = 'CAMx4.test.020614.ddm.inst.2',
 DDM_Nested_Restart        = 'CAMx4.test.020614.ddm.finst.2',

 DDM_Points_Group(1)       = 'ptsrc.utils.020614.bin',
 DDM_Points_Group(3)       = 'ptsrc.other.020614.bin',

 DDM_Emiss_Group_Grid(1,1) = 'emiss.utils_low.020614.36km.bin',
 DDM_Emiss_Group_Grid(1,2) = 'emiss.utils_low.020614.36km.bin',
 DDM_Emiss_Group_Grid(1,3) = 'emiss.utils_low.020614.36km.bin',
 DDM_Emiss_Group_Grid(2,1) = 'emiss.mv.020614.36km.bin',
 DDM_Emiss_Group_Grid(2,2) = 'emiss.mv.020614.36km.bin',
 DDM_Emiss_Group_Grid(2,3) = 'emiss.mv.020614.36km.bin',
 DDM_Emiss_Group_Grid(3,1) = 'emiss.other.020614.36km.bin',
 DDM_Emiss_Group_Grid(3,2) = 'emiss.other.020614.36km.bin',
 DDM_Emiss_Group_Grid(3,3) = 'emiss.other.020614.36km.bin',

 &
!-----------------------------------------------------------------------------
---
 &RT_Control

 RT_File_Root            = 'CAMx4.test.020614',

 RT_Initial_Conditions   = ' ',
 RT_Boundary_Conditions  = ' ',
 RT_Top_Concentrations   = ' ',
 RT_Master_Restart       = 'CAMx4.test.020614.rtrac.inst.2',
 RT_Nested_Restart       = 'CAMx4.test.020614.rtrac.finst.2',

 Sampling_Grid            = .true.,
```

```
 Number_of_Sampling_Grids = 1,
 SG_Beg_I_Index(1)        = 17,            ! Relative to master grid
 SG_End_I_Index(1)        = 18,
 SG_Beg_J_Index(1)        = 21,
 SG_End_J_Index(1)        = 22,
 SG_Mesh_Factor(1)        = 36.,           ! Cell size relative to master
grid

 RT_Chemistry_Parameters = 'CAMx4.chemparam.rtrac_test',
 RT_Receptor_Definitions = 'receptor.rtrac.test',
 RT_Point_Sources        = 'pt.rtrac.test',
 RT_Emiss_Grid(1)        = 'emiss.rtrac.36km',
 RT_Emiss_Grid(2)        = 'emiss.rtrac.12km',
 RT_Emiss_Grid(3)        = 'emiss.rtrac.04km',

 &
!-----------------------------------------------------------------------------
---
 &PA_Control

 PA_File_Root         = 'CAMx4.test.020614',

 Number_of_PA_Domains = 2,
 Within_CAMx_Grid(1)  = 1,  ! Specify which CAMx grid that this PA domain is
in
 PA_Beg_I_Index(1)    = 8,
 PA_End_I_Index(1)    = 12,
 PA_Beg_J_Index(1)    = 9,
 PA_End_J_Index(1)    = 13,
 PA_Beg_K_Index(1)    = 1,
 PA_End_K_Index(1)    = 5,

 Within_CAMx_Grid(2)  = 3,  ! Specify which CAMx grid that this PA domain is
in
 PA_Beg_I_Index(2)    = 107,
 PA_End_I_Index(2)    = 110,
 PA_Beg_J_Index(2)    = 78,
 PA_End_J_Index(2)    = 82,
 PA_Beg_K_Index(2)    = 1,
 PA_End_K_Index(2)    = 7,

 &
ieof

cp CAMx.in CAMx.in.02${TODAY[$i]}
uname -a > & camx.02${TODAY[$i]}.$RUN.stdout
#/bin/time $EXEC | & tee camx_v4.11s.02${TODAY[$i]}.$RUN.stdout
./CAMx.StLouis60.pg_linuxomp | & tee camx_v4.30.02${TODAY[$i]}.$RUN.stdout
rm -f CAMx.in
#date   >>&  CAMx_v4.11s.$RUN.${TODAY[$i]}.stdout

#
end
```

July-August 2002 Final Basecase (Typical)
camx.julaug02.baseD.CMAQ.kvpatch.mech4noPM.typical

```
#!/bin/csh
#
#   Script to Run CAMx
#
# Environment variables and executable for parallel processing on
# a dual-processor Linux workstation with Portland Group compiler
#
setenv NCPUS 2
setenv MPSTKZ 128M
limit stacksize unlimited
#
set RUN     = "St_LouisBaseD"
set EXEC    = "CAMx.StLouis60.pg_linuxomp"
set INPUT   = "/raid2a/ENVIRON/camx_inputs"
set MET     = "/raid1a/MM5CAMx/JulyAug"
set EMIS    = "/raid2a/base4_typ_emiss_julaug_camx/merged"
set PTSRCE  = "/raid2a/base4_typ_emiss_julaug_camx/merged"
set OTHER  = "../../../inputs"
#set OUTPUT  = "/raid2b/CAMx/outputs/redhat5/jun02b/OB70"
set OUTPUT =
"/model/CAMx/outputs/v4.30/julaug02d/mech4noPM/CMAQ.kvpatch/typical"

mkdir -p ./$RUN
cp $EXEC ./$RUN
cd ./$RUN

#mkdir -p $OUTPUT

set TODAY = (0729 0730 0731 0801 0802 0803 0804 0805)
#set TODAY = (0610 0611 0612 0613 0614 0615 0616 0617 0618 0619 0620 0621
0622 0623 0624)
#set YYYYMMDD =(20020610 20020611 20020612 20020613 20020614 20020615
20020616 20020617 20020618 20020619 20020620 20020621 20020622 20020623
20020624)
set YYYYMMDD = (20020729 20020730 20020731 20020801 20020802 20020803
20020804 20020805)
set JULIAN = (210 211 212 213 214 215 216 217)
#set JULIAN = (161 162 163 164 165 166 167 168 169 170 171 172 173 174 175)

#foreach i (1 2 3 4 5 6 7 8 9 10 11 12 13 14 15)
foreach i (1 2 3 4 5 6 7 8)
  @ MO = $TODAY[$i] / 100
  @ DAY = $TODAY[$i] - ($MO * 100)
if ($i == 1) then
  set RESTART = "false"
  set IC = "$INPUT/icbc/ic.stl36k.2002210.CAMx"
  @ im1 = $i
  set START = "2002,07,29,0000"
else
  set RESTART = "true"
  set IC =  " "
  @ im1 = ($i - 1)
  set START = "2002,$MO,$DAY,0000"
endif

cat << ieof > CAMx.in
```

```
 &CAMx_Control

 Run_Message      = 'CAMx v4.30 July/Aug 2002 D Mech4noPM(PiG) CMAQ.kvpatch',

!--- Model clock control ---

 Time_Zone        = 0,                 ! (0=UTC,5=EST,6=CST,7=MST,8=PST)
 Restart          = .$RESTART.,
 Start_Date_Hour  = $START,  ! (YYYY,MM,DD,HHmm)
 End_Date_Hour    = 2002,0$MO,$DAY,2400,   ! (YYYY,MM,DD,HHmm)

 Maximum_Timestep    = 15.,            ! minutes
 Met_Input_Frequency = 60.,            ! minutes
 Ems_Input_Frequency = 60.,            ! minutes
 Output_Frequency    = 60.,            ! minutes

!--- Map projection parameters ---

 Map_Projection           = 'LAMBERT', ! (LAMBERT,POLAR,UTM,LATLON)
 UTM_Zone                 = 0,
 POLAR_Longitude_Pole     = -100.,     ! deg (west<0,south<0)
 POLAR_Latitude_Pole      =  40.,      ! deg (west<0,south<0)
 LAMBERT_Center_Longitude = -97.,      ! deg (west<0,south<0)
 LAMBERT_Center_Latitude  =  40.,      ! deg (west<0,south<0)
 LAMBERT_True_Latitude1   =  33.,      ! deg (west<0,south<0)
 LAMBERT_True_Latitude2   =  45.,      ! deg (west<0,south<0)

!--- Parameters for the master (first) grid ---

 Number_of_Grids      = 3,
 Master_Origin_XCoord = -2736.,        ! km or deg, SW corner of cell(1,1)
 Master_Origin_YCoord = -2088.,        ! km or deg, SW corner of cell (1,1)
 Master_Cell_XSize    = 36.,           ! km or deg
 Master_Cell_YSize    = 36.,           ! km or deg
 Master_Grid_Columns  = 148,
 Master_Grid_Rows     = 112,
 Number_of_Layers(1)  = 16,

!--- Parameters for the second grid ---

 Nest_Meshing_Factor(2) = 3,           ! Cell size relative to master grid
 Nest_Beg_I_Index(2)    = 59,          ! Relative to master grid
 Nest_End_I_Index(2)    = 125,         ! Relative to master grid
 Nest_Beg_J_Index(2)    = 22,          ! Relative to master grid
 Nest_End_J_Index(2)    = 87,          ! Relative to master grid
 Number_of_Layers(2)    = 16,

!--- Parameters for the third grid ---

 Nest_Meshing_Factor(3) = 9,           ! Cell size relative to master grid
 Nest_Beg_I_Index(3)    = 79,          ! Relative to master grid
 Nest_End_I_Index(3)    = 106,         ! Relative to master grid
 Nest_Beg_J_Index(3)    = 43,          ! Relative to master grid
 Nest_End_J_Index(3)    = 66,          ! Relative to master grid
 Number_of_Layers(3)    = 16,

!--- Model options ---

 Diagnostic_Error_Check = .false.,      ! True = will stop after 1st timestep
 Advection_Solver       = 'PPM',       ! (PPM,BOTT)
```

```
 Chemistry_Solver       = 'CMC',        ! (CMC,IEH,LSODE)
 PiG_Submodel           = 'GREASD',       ! (None,GREASD,IRON)
 Probing_Tool           = 'None',       !
(None,OSAT,PSAT,GOAT,APCA,DDM,PA,RTRAC)
 Chemistry              = .true.,
 Dry_Deposition         = .true.,
 Wet_Deposition         = .true.,
 Staggered_Winds        = .true.,
 Gridded_Emissions      = .true.,
 Point_Emissions        = .true.,
 Ignore_Emission_Dates  = .true.,

!--- Output specifications ---

 Root_Output_Name         = '$OUTPUT/camx.02${TODAY[$i]}.$RUN',
 Average_Output_3D        = .false.,
 HDF_Format_Output        = .false.,
 HDF_File_Root            = '$OUTPUT/camx.02${TODAY[$i]}.$RUN.hdf',
 Number_of_Output_Species = 16,
 Output_Species_Names(1)  = 'NO  ',
 Output_Species_Names(2)  = 'NO2 ',
 Output_Species_Names(3)  = 'O3  ',
 Output_Species_Names(4)  = 'SO2 ',
 Output_Species_Names(5)  = 'PAR ',
 Output_Species_Names(6)  = 'TOL ',
 Output_Species_Names(7)  = 'ETH ',
 Output_Species_Names(8)  = 'OLE ',
 Output_Species_Names(9)  = 'PAN ',
 Output_Species_Names(10) = 'ISOP',
 Output_Species_Names(11) = 'XYL ',
 Output_Species_Names(12) = 'FORM',
 Output_Species_Names(13) = 'ALD2',
 Output_Species_Names(14) = 'HNO3',
 Output_Species_Names(15) = 'NXOY',
 Output_Species_Names(16) = 'NTR ',

!--- Input files ---

 Chemistry_Parameters = '/model/CAMx/v4.30/inputs/CAMx4.3.chemparam.4_NONE',
 Photolyis_Rates      = '$INPUT/rates/no_snow/28jul-
06aug/rates.camx.020803.361204.base1',
 Initial_Conditions   = '$IC',
 Boundary_Conditions  = '$INPUT/icbc/bc.stl36k.2002${JULIAN[$i]}.CAMx',
 Top_Concentrations   = '$INPUT/icbc/topc.stl36k.2002210.CAMx',
 Albedo_Haze_Ozone    = '$INPUT/ahoz.orig/no_snow/28jul-
06aug/ahoz.camx.28jul-06aug.361204.base1.mdnr',
 Point_Sources        = '$PTSRCE/ptsrce.pig.2002${TODAY[$i]}.base4T.bin',
 Master_Grid_Restart  = '$OUTPUT/camx.02${TODAY[$im1]}.$RUN.inst.2',
 Nested_Grid_Restart  = '$OUTPUT/camx.02${TODAY[$im1]}.$RUN.finst.2',
 PiG_Restart          = '$OUTPUT/camx.02${TODAY[$im1]}.$RUN.pig',

 Landuse_Grid(1) = '$INPUT/landuse/lu.stlouis.36km.bin',
 Landuse_Grid(2) = '$INPUT/landuse/lu.stlouis.12km.bin',
 Landuse_Grid(3) = '$INPUT/landuse/lu.stlouis.04km.bin',
 ZP_Grid(1)      = '$MET/pres.camx.02${TODAY[$i]}.natl.36.base1',
 ZP_Grid(2)      = '$MET/pres.camx.02${TODAY[$i]}.CRAP.12.base1',
 ZP_Grid(3)      = '$MET/pres.camx.02${TODAY[$i]}.SLOP.4.base1',
 Wind_Grid(1)    = '$MET/wind.camx.02${TODAY[$i]}.natl.36.base1',
 Wind_Grid(2)    = '$MET/wind.camx.02${TODAY[$i]}.CRAP.12.base1',
 Wind_Grid(3)    = '$MET/wind.camx.02${TODAY[$i]}.SLOP.4.base1',
```

```
 Temp_Grid(1)    = '$MET/temp.camx.02${TODAY[$i]}.natl.36.base1',
 Temp_Grid(2)    = '$MET/temp.camx.02${TODAY[$i]}.CRAP.12.base1',
 Temp_Grid(3)    = '$MET/temp.camx.02${TODAY[$i]}.SLOP.4.base1',
 Vapor_Grid(1)   = '$MET/wvap.camx.02${TODAY[$i]}.natl.36.base1',
 Vapor_Grid(2)   = '$MET/wvap.camx.02${TODAY[$i]}.CRAP.12.base1',
 Vapor_Grid(3)   = '$MET/wvap.camx.02${TODAY[$i]}.SLOP.4.base1',
 Cloud_Grid(1)   = '$MET/clra.camx.02${TODAY[$i]}.natl.36.base1.v4.30',
 Cloud_Grid(2)   = '$MET/clra.camx.02${TODAY[$i]}.CRAP.12.base1.v4.30',
 Cloud_Grid(3)   = '$MET/clra.camx.02${TODAY[$i]}.SLOP.4.base1.v4.30',
 Kv_Grid(1)      =
'$MET/vdif.camx.02${TODAY[$i]}.natl.36.base1.CMAQ.kvpatch',
 Kv_Grid(2)      =
'$MET/vdif.camx.02${TODAY[$i]}.CRAP.12.base1.CMAQ.kvpatch',
 Kv_Grid(3)      = '$MET/vdif.camx.02${TODAY[$i]}.SLOP.4.base1.CMAQ.kvpatch',
 Emiss_Grid(1)   = '$EMIS/emiss_low.base4T.stl36km.2002${TODAY[$i]}.CAMx',
 Emiss_Grid(2)   =
'$EMIS/emiss_low.base4T.stl12km_photo.2002${TODAY[$i]}.CAMx',
 Emiss_Grid(3)   = '$EMIS/emiss_low.base4T.stl4km.2002${TODAY[$i]}.CAMx',

 &
! No probing tools for this run.  Everything below this line is not used.
!-----------------------------------------------------------------------------
---
 &SA_Control

 SA_File_Root              = 'CAMx4.test.020614',
 SA_Summary_Output         = .true.,

 SA_Master_Sfc_Output         = .true.,
 SA_Nested_Sfc_Output         = .true.,
 SA_Stratify_Boundary         = .true.,
 SA_Number_of_Source_Regions  = 10,
 SA_Number_of_Source_Groups   = 3,
 Use_Leftover_Group           = .false.,
 Number_of_Timing_Releases    = 0,
 PSAT_Treat_SULFATE_Class     = .false.,
 PSAT_Treat_NITRATE_Class     = .true.,
 PSAT_Treat_SOA_Class         = .false.,
 PSAT_Treat_PRIMARY_Class     = .false.,
 PSAT_Treat_MERCURY_Class     = .false.,
 PSAT_Treat_OZONE_Class       = .false.,

 SA_Receptor_Definitions  = 'osat.rcp.def.dat',
 SA_Source_Area_Map(1)    = 'osat.src.area.map.g1',
 SA_Source_Area_Map(2)    = 'osat.src.area.map.g2',
 SA_Source_Area_Map(3)    = 'osat.src.area.map.g3',

 SA_Master_Restart        = 'CAMx4.test.020614.osat.inst.2',
 SA_Nested_Restart        = 'CAMx4.test.020614.osat.finst.2',

 SA_Points_Group(1)       = 'ptsrc.utils.020614.bin',
 SA_Points_Group(3)       = 'ptsrc.other.020614.bin',

 SA_Emiss_Group_Grid(1,1) = 'emiss.utils_low.020614.36km.bin',
 SA_Emiss_Group_Grid(1,2) = 'emiss.utils_low.020614.12km.bin',
 SA_Emiss_Group_Grid(1,3) = 'emiss.utils_low.020614.04km.bin',
 SA_Emiss_Group_Grid(2,1) = 'emiss.mv.020614.36km.bin',
 SA_Emiss_Group_Grid(2,2) = 'emiss.mv.020614.12km.bin',
 SA_Emiss_Group_Grid(2,3) = 'emiss.mv.020614.04km.bin',
 SA_Emiss_Group_Grid(3,1) = 'emiss.other.020614.36km.bin',
```

```
 SA_Emiss_Group_Grid(3,2) = 'emiss.other.020614.12km.bin',
 SA_Emiss_Group_Grid(3,3) = 'emiss.other.020614.04km.bin',

 &
!-----------------------------------------------------------------------------
---
 &DDM_Control

 DDM_File_Root                = 'CAMx4.test.020614',
 DDM_Master_Sfc_Output        = .true.,
 DDM_Nested_Sfc_Output        = .true.,
 DDM_Stratify_Boundary        = .true.,
 DDM_Number_of_Source_Regions = 10,
 DDM_Number_of_Source_Groups  = 3,

 Number_of_IC_Species_Groups = 1,
 IC_Species_Groups(1)        = 'O3',
 Number_of_BC_Species_Groups = 1,
 BC_species_Groups(1)        = 'O3',
 Number_of_EM_Species_Groups = 2,
 Emis_Species_Groups(1)      = 'O3',
 Emis_Species_Groups(2)      = 'NOX',

 DDM_Receptor_Definitions  = 'ddm.rcp.def.dat',
 DDM_Source_Area_Map(1)    = 'ddm.src.area.map.g1',
 DDM_Source_Area_Map(2)    = 'ddm.src.area.map.g2',
 DDM_Source_Area_Map(3)    = 'ddm.src.area.map.g3',

 DDM_Initial_Conditions    = 'ic.generic.bin',
 DDM_Boundary_Conditions   = 'bc.generic.bin',
 DDM_Top_Concentrations    = 'tc.generic',
 DDM_Master_Restart        = 'CAMx4.test.020614.ddm.inst.2',
 DDM_Nested_Restart        = 'CAMx4.test.020614.ddm.finst.2',

 DDM_Points_Group(1)       = 'ptsrc.utils.020614.bin',
 DDM_Points_Group(3)       = 'ptsrc.other.020614.bin',

 DDM_Emiss_Group_Grid(1,1) = 'emiss.utils_low.020614.36km.bin',
 DDM_Emiss_Group_Grid(1,2) = 'emiss.utils_low.020614.36km.bin',
 DDM_Emiss_Group_Grid(1,3) = 'emiss.utils_low.020614.36km.bin',
 DDM_Emiss_Group_Grid(2,1) = 'emiss.mv.020614.36km.bin',
 DDM_Emiss_Group_Grid(2,2) = 'emiss.mv.020614.36km.bin',
 DDM_Emiss_Group_Grid(2,3) = 'emiss.mv.020614.36km.bin',
 DDM_Emiss_Group_Grid(3,1) = 'emiss.other.020614.36km.bin',
 DDM_Emiss_Group_Grid(3,2) = 'emiss.other.020614.36km.bin',
 DDM_Emiss_Group_Grid(3,3) = 'emiss.other.020614.36km.bin',

 &
!-----------------------------------------------------------------------------
---
 &RT_Control

 RT_File_Root            = 'CAMx4.test.020614',

 RT_Initial_Conditions   = ' ',
 RT_Boundary_Conditions  = ' ',
 RT_Top_Concentrations   = ' ',
 RT_Master_Restart       = 'CAMx4.test.020614.rtrac.inst.2',
 RT_Nested_Restart       = 'CAMx4.test.020614.rtrac.finst.2',
```

```
 Sampling_Grid            = .true.,
 Number_of_Sampling_Grids = 1,
 SG_Beg_I_Index(1)        = 17,            ! Relative to master grid
 SG_End_I_Index(1)        = 18,
 SG_Beg_J_Index(1)        = 21,
 SG_End_J_Index(1)        = 22,
 SG_Mesh_Factor(1)        = 36.,           ! Cell size relative to master
grid

 RT_Chemistry_Parameters = 'CAMx4.chemparam.rtrac_test',
 RT_Receptor_Definitions = 'receptor.rtrac.test',
 RT_Point_Sources        = 'pt.rtrac.test',
 RT_Emiss_Grid(1)        = 'emiss.rtrac.36km',
 RT_Emiss_Grid(2)        = 'emiss.rtrac.12km',
 RT_Emiss_Grid(3)        = 'emiss.rtrac.04km',

 &
!-----------------------------------------------------------------------------
---
 &PA_Control

 PA_File_Root         = 'CAMx4.test.020614',

 Number_of_PA_Domains = 2,
 Within_CAMx_Grid(1)  = 1,  ! Specify which CAMx grid that this PA domain is
in
 PA_Beg_I_Index(1)    = 8,
 PA_End_I_Index(1)    = 12,
 PA_Beg_J_Index(1)    = 9,
 PA_End_J_Index(1)    = 13,
 PA_Beg_K_Index(1)    = 1,
 PA_End_K_Index(1)    = 5,

 Within_CAMx_Grid(2)  = 3,  ! Specify which CAMx grid that this PA domain is
in
 PA_Beg_I_Index(2)    = 107,
 PA_End_I_Index(2)    = 110,
 PA_Beg_J_Index(2)    = 78,
 PA_End_J_Index(2)    = 82,
 PA_Beg_K_Index(2)    = 1,
 PA_End_K_Index(2)    = 7,

 &
ieof

cp CAMx.in CAMx.in.02${TODAY[$i]}
uname -a > & camx.02${TODAY[$i]}.$RUN.stdout
#/bin/time $EXEC | & tee camx_v4.11s.02${TODAY[$i]}.$RUN.stdout
./CAMx.StLouis60.pg_linuxomp | & tee camx_v4.30.02${TODAY[$i]}.$RUN.stdout
rm -f CAMx.in
#date   >>&  CAMx_v4.11s.$RUN.${TODAY[$i]}.stdout

#
end
```

July-August 2009 Attainment Demonstration
camx.julaug02.D09OTB.CMAQ.kvpatch.mech4noPM_correct

```
#!/bin/csh
#
#   Script to Run CAMx
#
# Environment variables and executable for parallel processing on
# a dual-processor Linux workstation with Portland Group compiler
#
setenv NCPUS 2
setenv MPSTKZ 128M
limit stacksize unlimited
#
set RUN     = "St_LouisD09OTB_correct"
set EXEC    = "CAMx.StLouis60.pg_linuxomp"
set INPUT   = "/raid2a/ENVIRON/camx_inputs"
set MET     = "/raid1a/MM5CAMx/JulyAug"
set EMIS    = "/raid2a/base4_emiss_julaug_camx_09_OTB_ptne-
ar_correction/merged"
set PTSRCE  = "/raid2a/base4_emiss_julaug_camx_09_OTB_ptne-
ar_correction/merged"
set OTHER  = "../../../inputs"
#set OUTPUT  = "/raid2b/CAMx/outputs/redhat5/jun02b/OB70"
set OUTPUT =
"/model/CAMx/outputs/v4.30/julaug02d/2009OTB_correct/mech4noPM/CMAQ.kvpatch"

mkdir -p ./$RUN
cp $EXEC ./$RUN
cd ./$RUN

#mkdir -p $OUTPUT

set TODAY = (0729 0730 0731 0801 0802 0803 0804 0805)
#set TODAY = (0610 0611 0612 0613 0614 0615 0616 0617 0618 0619 0620 0621
0622 0623 0624)
#set YYYYMMDD =(20020610 20020611 20020612 20020613 20020614 20020615
20020616 20020617 20020618 20020619 20020620 20020621 20020622 20020623
20020624)
set YYYYMMDD = (20020729 20020730 20020731 20020801 20020802 20020803
20020804 20020805)
set JULIAN = (210 211 212 213 214 215 216 217)
#set JULIAN = (161 162 163 164 165 166 167 168 169 170 171 172 173 174 175)

#foreach i (1 2 3 4 5 6 7 8 9 10 11 12 13 14 15)
foreach i (1 2 3 4 5 6 7 8)
  @ MO = $TODAY[$i] / 100
  @ DAY = $TODAY[$i] - ($MO * 100)
if ($i == 1) then
  set RESTART = "false"
  set IC = "$INPUT/icbc/ic.stl36k.2002210.CAMx"
  @ im1 = $i
  set START = "2002,07,29,0000"
else
  set RESTART = "true"
  set IC =  " "
  @ im1 = ($i - 1)
  set START = "2002,$MO,$DAY,0000"
endif
```

```
cat << ieof > CAMx.in
 &CAMx_Control

 Run_Message      = 'CAMx v4.30 July/Aug 2002 D09OTB Correct Mech4noPM(PiG)
CMAQ.kvpatch',

!--- Model clock control ---

 Time_Zone        = 0,                 ! (0=UTC,5=EST,6=CST,7=MST,8=PST)
 Restart          = .$RESTART.,
 Start_Date_Hour  = $START,  ! (YYYY,MM,DD,HHmm)
 End_Date_Hour    = 2002,0$MO,$DAY,2400,   ! (YYYY,MM,DD,HHmm)

 Maximum_Timestep    = 15.,            ! minutes
 Met_Input_Frequency = 60.,            ! minutes
 Ems_Input_Frequency = 60.,            ! minutes
 Output_Frequency    = 60.,            ! minutes

!--- Map projection parameters ---

 Map_Projection           = 'LAMBERT', ! (LAMBERT,POLAR,UTM,LATLON)
 UTM_Zone                 = 0,
 POLAR_Longitude_Pole     = -100.,     ! deg (west<0,south<0)
 POLAR_Latitude_Pole      =  40.,      ! deg (west<0,south<0)
 LAMBERT_Center_Longitude = -97.,      ! deg (west<0,south<0)
 LAMBERT_Center_Latitude  =  40.,      ! deg (west<0,south<0)
 LAMBERT_True_Latitude1   =  33.,      ! deg (west<0,south<0)
 LAMBERT_True_Latitude2   =  45.,      ! deg (west<0,south<0)

!--- Parameters for the master (first) grid ---

 Number_of_Grids      = 3,
 Master_Origin_XCoord = -2736.,        ! km or deg, SW corner of cell(1,1)
 Master_Origin_YCoord = -2088.,        ! km or deg, SW corner of cell (1,1)
 Master_Cell_XSize    = 36.,           ! km or deg
 Master_Cell_YSize    = 36.,           ! km or deg
 Master_Grid_Columns  = 148,
 Master_Grid_Rows     = 112,
 Number_of_Layers(1)  = 16,

!--- Parameters for the second grid ---

 Nest_Meshing_Factor(2) = 3,           ! Cell size relative to master grid
 Nest_Beg_I_Index(2)    = 59,          ! Relative to master grid
 Nest_End_I_Index(2)    = 125,         ! Relative to master grid
 Nest_Beg_J_Index(2)    = 22,          ! Relative to master grid
 Nest_End_J_Index(2)    = 87,          ! Relative to master grid
 Number_of_Layers(2)    = 16,

!--- Parameters for the third grid ---

 Nest_Meshing_Factor(3) = 9,           ! Cell size relative to master grid
 Nest_Beg_I_Index(3)    = 79,          ! Relative to master grid
 Nest_End_I_Index(3)    = 106,         ! Relative to master grid
 Nest_Beg_J_Index(3)    = 43,          ! Relative to master grid
 Nest_End_J_Index(3)    = 66,          ! Relative to master grid
 Number_of_Layers(3)    = 16,

!--- Model options ---
```

```
 Diagnostic_Error_Check = .false.,      ! True = will stop after 1st timestep
 Advection_Solver       = 'PPM',       ! (PPM,BOTT)
 Chemistry_Solver       = 'CMC',       ! (CMC,IEH,LSODE)
 PiG_Submodel           = 'GREASD',      ! (None,GREASD,IRON)
 Probing_Tool           = 'None',      !
(None,OSAT,PSAT,GOAT,APCA,DDM,PA,RTRAC)
 Chemistry              = .true.,
 Dry_Deposition         = .true.,
 Wet_Deposition         = .true.,
 Staggered_Winds        = .true.,
 Gridded_Emissions      = .true.,
 Point_Emissions        = .true.,
 Ignore_Emission_Dates  = .true.,

!--- Output specifications ---

 Root_Output_Name         = '$OUTPUT/camx.02${TODAY[$i]}.$RUN',
 Average_Output_3D        = .false.,
 HDF_Format_Output        = .false.,
 HDF_File_Root            = '$OUTPUT/camx.02${TODAY[$i]}.$RUN.hdf',
 Number_of_Output_Species = 16,
 Output_Species_Names(1)  = 'NO  ',
 Output_Species_Names(2)  = 'NO2 ',
 Output_Species_Names(3)  = 'O3  ',
 Output_Species_Names(4)  = 'SO2 ',
 Output_Species_Names(5)  = 'PAR ',
 Output_Species_Names(6)  = 'TOL ',
 Output_Species_Names(7)  = 'ETH ',
 Output_Species_Names(8)  = 'OLE ',
 Output_Species_Names(9)  = 'PAN ',
 Output_Species_Names(10) = 'ISOP',
 Output_Species_Names(11) = 'XYL ',
 Output_Species_Names(12) = 'FORM',
 Output_Species_Names(13) = 'ALD2',
 Output_Species_Names(14) = 'HNO3',
 Output_Species_Names(15) = 'NXOY',
 Output_Species_Names(16) = 'NTR ',

!--- Input files ---

 Chemistry_Parameters = '/model/CAMx/v4.30/inputs/CAMx4.3.chemparam.4_NONE',
 Photolyis_Rates      = '$INPUT/rates/no_snow/28jul-
06aug/rates.camx.020803.361204.base1',
 Initial_Conditions   = '$IC',
 Boundary_Conditions  = '$INPUT/icbc/bc.stl36k.2002${JULIAN[$i]}.CAMx',
 Top_Concentrations   = '$INPUT/icbc/topc.stl36k.2002210.CAMx',
 Albedo_Haze_Ozone    = '$INPUT/ahoz.orig/no_snow/28jul-
06aug/ahoz.camx.28jul-06aug.361204.base1.mdnr',
 Point_Sources        =
'$PTSRCE/ptsrce.pig.2002${TODAY[$i]}.base4T_09_OTB.NOxSIP.bin',
 Master_Grid_Restart  = '$OUTPUT/camx.02${TODAY[$im1]}.$RUN.inst.2',
 Nested_Grid_Restart  = '$OUTPUT/camx.02${TODAY[$im1]}.$RUN.finst.2',
 PiG_Restart          = '$OUTPUT/camx.02${TODAY[$im1]}.$RUN.pig',

 Landuse_Grid(1) = '$INPUT/landuse/lu.stlouis.36km.bin',
 Landuse_Grid(2) = '$INPUT/landuse/lu.stlouis.12km.bin',
 Landuse_Grid(3) = '$INPUT/landuse/lu.stlouis.04km.bin',
 ZP_Grid(1)      = '$MET/pres.camx.02${TODAY[$i]}.natl.36.base1',
 ZP_Grid(2)      = '$MET/pres.camx.02${TODAY[$i]}.CRAP.12.base1',
```

```
 ZP_Grid(3)      = '$MET/pres.camx.02${TODAY[$i]}.SLOP.4.base1',
 Wind_Grid(1)    = '$MET/wind.camx.02${TODAY[$i]}.natl.36.base1',
 Wind_Grid(2)    = '$MET/wind.camx.02${TODAY[$i]}.CRAP.12.base1',
 Wind_Grid(3)    = '$MET/wind.camx.02${TODAY[$i]}.SLOP.4.base1',
 Temp_Grid(1)    = '$MET/temp.camx.02${TODAY[$i]}.natl.36.base1',
 Temp_Grid(2)    = '$MET/temp.camx.02${TODAY[$i]}.CRAP.12.base1',
 Temp_Grid(3)    = '$MET/temp.camx.02${TODAY[$i]}.SLOP.4.base1',
 Vapor_Grid(1)   = '$MET/wvap.camx.02${TODAY[$i]}.natl.36.base1',
 Vapor_Grid(2)   = '$MET/wvap.camx.02${TODAY[$i]}.CRAP.12.base1',
 Vapor_Grid(3)   = '$MET/wvap.camx.02${TODAY[$i]}.SLOP.4.base1',
 Cloud_Grid(1)   = '$MET/clra.camx.02${TODAY[$i]}.natl.36.base1.v4.30',
 Cloud_Grid(2)   = '$MET/clra.camx.02${TODAY[$i]}.CRAP.12.base1.v4.30',
 Cloud_Grid(3)   = '$MET/clra.camx.02${TODAY[$i]}.SLOP.4.base1.v4.30',
 Kv_Grid(1)      =
'$MET/vdif.camx.02${TODAY[$i]}.natl.36.base1.CMAQ.kvpatch',
 Kv_Grid(2)      =
'$MET/vdif.camx.02${TODAY[$i]}.CRAP.12.base1.CMAQ.kvpatch',
 Kv_Grid(3)      = '$MET/vdif.camx.02${TODAY[$i]}.SLOP.4.base1.CMAQ.kvpatch',
 Emiss_Grid(1)   =
'$EMIS/emiss_low.base4T_09_OTB.stl36km.C.2002${TODAY[$i]}.CAMx',
 Emiss_Grid(2)   =
'$EMIS/emiss_low.base4T_09_OTB.stl12km_photo.C.2002${TODAY[$i]}.CAMx',
 Emiss_Grid(3)   =
'$EMIS/emiss_low.base4T_09_OTB.stl4km.C.2002${TODAY[$i]}.CAMx',

 &
! No probing tools for this run.  Everything below this line is not used.
!-----------------------------------------------------------------------------
---
 &SA_Control

 SA_File_Root              = 'CAMx4.test.020614',
 SA_Summary_Output         = .true.,

 SA_Master_Sfc_Output         = .true.,
 SA_Nested_Sfc_Output         = .true.,
 SA_Stratify_Boundary         = .true.,
 SA_Number_of_Source_Regions  = 10,
 SA_Number_of_Source_Groups   = 3,
 Use_Leftover_Group           = .false.,
 Number_of_Timing_Releases    = 0,
 PSAT_Treat_SULFATE_Class     = .false.,
 PSAT_Treat_NITRATE_Class     = .true.,
 PSAT_Treat_SOA_Class         = .false.,
 PSAT_Treat_PRIMARY_Class     = .false.,
 PSAT_Treat_MERCURY_Class     = .false.,
 PSAT_Treat_OZONE_Class       = .false.,

 SA_Receptor_Definitions  = 'osat.rcp.def.dat',
 SA_Source_Area_Map(1)    = 'osat.src.area.map.g1',
 SA_Source_Area_Map(2)    = 'osat.src.area.map.g2',
 SA_Source_Area_Map(3)    = 'osat.src.area.map.g3',

 SA_Master_Restart        = 'CAMx4.test.020614.osat.inst.2',
 SA_Nested_Restart        = 'CAMx4.test.020614.osat.finst.2',

 SA_Points_Group(1)       = 'ptsrc.utils.020614.bin',
 SA_Points_Group(3)       = 'ptsrc.other.020614.bin',

 SA_Emiss_Group_Grid(1,1) = 'emiss.utils_low.020614.36km.bin',
```

```
 SA_Emiss_Group_Grid(1,2) = 'emiss.utils_low.020614.12km.bin',
 SA_Emiss_Group_Grid(1,3) = 'emiss.utils_low.020614.04km.bin',
 SA_Emiss_Group_Grid(2,1) = 'emiss.mv.020614.36km.bin',
 SA_Emiss_Group_Grid(2,2) = 'emiss.mv.020614.12km.bin',
 SA_Emiss_Group_Grid(2,3) = 'emiss.mv.020614.04km.bin',
 SA_Emiss_Group_Grid(3,1) = 'emiss.other.020614.36km.bin',
 SA_Emiss_Group_Grid(3,2) = 'emiss.other.020614.12km.bin',
 SA_Emiss_Group_Grid(3,3) = 'emiss.other.020614.04km.bin',

 &
!-----------------------------------------------------------------------------
---
 &DDM_Control

 DDM_File_Root                = 'CAMx4.test.020614',
 DDM_Master_Sfc_Output        = .true.,
 DDM_Nested_Sfc_Output        = .true.,
 DDM_Stratify_Boundary        = .true.,
 DDM_Number_of_Source_Regions = 10,
 DDM_Number_of_Source_Groups  = 3,

 Number_of_IC_Species_Groups = 1,
 IC_Species_Groups(1)        = 'O3',
 Number_of_BC_Species_Groups = 1,
 BC_species_Groups(1)        = 'O3',
 Number_of_EM_Species_Groups = 2,
 Emis_Species_Groups(1)      = 'O3',
 Emis_Species_Groups(2)      = 'NOX',

 DDM_Receptor_Definitions  = 'ddm.rcp.def.dat',
 DDM_Source_Area_Map(1)    = 'ddm.src.area.map.g1',
 DDM_Source_Area_Map(2)    = 'ddm.src.area.map.g2',
 DDM_Source_Area_Map(3)    = 'ddm.src.area.map.g3',

 DDM_Initial_Conditions    = 'ic.generic.bin',
 DDM_Boundary_Conditions   = 'bc.generic.bin',
 DDM_Top_Concentrations    = 'tc.generic',
 DDM_Master_Restart        = 'CAMx4.test.020614.ddm.inst.2',
 DDM_Nested_Restart        = 'CAMx4.test.020614.ddm.finst.2',

 DDM_Points_Group(1)       = 'ptsrc.utils.020614.bin',
 DDM_Points_Group(3)       = 'ptsrc.other.020614.bin',

 DDM_Emiss_Group_Grid(1,1) = 'emiss.utils_low.020614.36km.bin',
 DDM_Emiss_Group_Grid(1,2) = 'emiss.utils_low.020614.36km.bin',
 DDM_Emiss_Group_Grid(1,3) = 'emiss.utils_low.020614.36km.bin',
 DDM_Emiss_Group_Grid(2,1) = 'emiss.mv.020614.36km.bin',
 DDM_Emiss_Group_Grid(2,2) = 'emiss.mv.020614.36km.bin',
 DDM_Emiss_Group_Grid(2,3) = 'emiss.mv.020614.36km.bin',
 DDM_Emiss_Group_Grid(3,1) = 'emiss.other.020614.36km.bin',
 DDM_Emiss_Group_Grid(3,2) = 'emiss.other.020614.36km.bin',
 DDM_Emiss_Group_Grid(3,3) = 'emiss.other.020614.36km.bin',

 &
!-----------------------------------------------------------------------------
---
 &RT_Control

 RT_File_Root            = 'CAMx4.test.020614',
```

```
 RT_Initial_Conditions   = ' ',
 RT_Boundary_Conditions  = ' ',
 RT_Top_Concentrations   = ' ',
 RT_Master_Restart       = 'CAMx4.test.020614.rtrac.inst.2',
 RT_Nested_Restart       = 'CAMx4.test.020614.rtrac.finst.2',

 Sampling_Grid            = .true.,
 Number_of_Sampling_Grids = 1,
 SG_Beg_I_Index(1)        = 17,            ! Relative to master grid
 SG_End_I_Index(1)        = 18,
 SG_Beg_J_Index(1)        = 21,
 SG_End_J_Index(1)        = 22,
 SG_Mesh_Factor(1)        = 36.,           ! Cell size relative to master
grid

 RT_Chemistry_Parameters = 'CAMx4.chemparam.rtrac_test',
 RT_Receptor_Definitions = 'receptor.rtrac.test',
 RT_Point_Sources        = 'pt.rtrac.test',
 RT_Emiss_Grid(1)        = 'emiss.rtrac.36km',
 RT_Emiss_Grid(2)        = 'emiss.rtrac.12km',
 RT_Emiss_Grid(3)        = 'emiss.rtrac.04km',

 &
!-----------------------------------------------------------------------------
---
 &PA_Control

 PA_File_Root         = 'CAMx4.test.020614',

 Number_of_PA_Domains = 2,
 Within_CAMx_Grid(1)  = 1,  ! Specify which CAMx grid that this PA domain is
in
 PA_Beg_I_Index(1)    = 8,
 PA_End_I_Index(1)    = 12,
 PA_Beg_J_Index(1)    = 9,
 PA_End_J_Index(1)    = 13,
 PA_Beg_K_Index(1)    = 1,
 PA_End_K_Index(1)    = 5,

 Within_CAMx_Grid(2)  = 3,  ! Specify which CAMx grid that this PA domain is
in
 PA_Beg_I_Index(2)    = 107,
 PA_End_I_Index(2)    = 110,
 PA_Beg_J_Index(2)    = 78,
 PA_End_J_Index(2)    = 82,
 PA_Beg_K_Index(2)    = 1,
 PA_End_K_Index(2)    = 7,

 &
ieof

cp CAMx.in CAMx.in.02${TODAY[$i]}
uname -a > & camx.02${TODAY[$i]}.$RUN.stdout
#/bin/time $EXEC | & tee camx_v4.11s.02${TODAY[$i]}.$RUN.stdout
./CAMx.StLouis60.pg_linuxomp | & tee camx_v4.30.02${TODAY[$i]}.$RUN.stdout
rm -f CAMx.in
#date   >>&  CAMx_v4.11s.$RUN.${TODAY[$i]}.stdout

#
end
```

CMAQ v4.4 Final Basecase (June-36km)
run.June02.baseD.master.36km

```
#!/bin/bash
#
#  --- define the machines that will run the application
#
#cat << ieof > machines
#node1
#node1
#node2
#node2
#node3
#ieof
#
#  --- calculate number of PROCS based on machines file
#
NPROCS='1'
#NPROCS=`wc -l machines | awk '{print $1+1}'`
export 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=2002161     #first day

#export NEW_START=false  #always FALSE for restart
#start_date=2002000      #restart from this day

end_date=2002175       #last day
echo "START/END DATE: $start_date - $end_date"


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

export VERS=v44
export SOLV=ebi

export M3YEAR=2002
export M3PLAN=stlouis
export EPISODE=June02
export M3CASE=baseD
export CHEM=cbiv
# emissions case
export M3ECASE=b4_cmaq
export M3EXTN=${M3PLAN}_${M3CASE}
#
export M3MCASE=v02_aaa
#
export M3GRID=36
export M3VLEV=16
```

```
#export
APPL=${VERS}_cb4_${SOLV}_${M3GRID}k_${M3VLEV}L_mpi_${compiler}_kz1_massp_acon
c
export APPL=${VERS}_cb4_${SOLV}_StLouis${M3GRID}k_${M3VLEV}L_${compiler}
export CFG=$APPL
export EXEDIR=/model/cmaq_4.4/scripts/cctm
export EXEC=CCTM_${CFG}


##############
# File paths
##############
#
#export M3INPUT=$PATH/CMAQ/inputs
export M3INPUT=/raid2a/ENVIRON

# emissions files location
export EMISpath=/raid1a/edss/data_stlb4/run_b4_cmaq/output/merge

# output files location
export
M3OUT=/model/cmaq_4.4/outputs/${VERS}_${SOLV}_${M3CASE}_${M3GRID}/$EPISODE
mkdir -p $M3OUT/LOGS

# initial conditions file location
export GC_ICpath=$M3INPUT/icbc/ic_from_cenrap_cmaq_36km/episode_1
#export GC_ICpath=$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/episode_1

# Met files location
export METpath=/raid1a/MCIP/June10-24/${M3GRID}km
#export METpath=$M3INPUT/mcip/$M3GRID


###############
#  File names
###############
# initial conditions file
#export GC_ICfile=ICON_v422_${M3GRID}k_${M3VLEV}L_profile
export GC_ICfile=ICON_v44_cb4_${M3GRID}k_16L_St_Louis.2002161

# 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

   # check whether this is a cold start (first day of modeling)
   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 $STDATE | sed -e 's/ //g')
   export GC_BCfile=BCON_geoschem_new_cb4_${M3GRID}k_16L_St_Louis.$TODAY

   # 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.36km > $RUN_LOG.$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
```

CMAQ v4.4 Final Basecase (June-36km)
run.cctm.36km

```
#!/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}


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


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

# 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 A25J A25I ACORS ASEAS ASOIL"


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


G_DAY=$(./j2g $STDATE | sed -e 's/ //g')
# works for July/August
if [ "$STDATE" -le "2002212" ]; then
  G1_DAY=$(./j2g $STDATE | sed -e 's/2002 07 /07_/g')
fi
#if [ "$STDATE" -ge "2002213" ]; then
#  G1_DAY=$(./j2g $STDATE | sed -e 's/2002 08 /08_/g')
#fi
#G1_DAY=$(./j2g $STDATE | sed -e 's/2002 06 //g')

# input files and directories

# emis files

EMISfile=egts3d_l.${G_DAY}.1.${M3GRID}km.${M3ECASE}.ncf
#12km includes photo
EMISfile=egts_l.$STDATE.1.${M3GRID}k_photo.stl${M3GRID}kmerge.cmaq.cb4p25.ncf
#EMISfile=egts_l.$STDATE.1.${M3GRID}k.stl${M3GRID}kmerge.cmaq.cb4p25.ncf

# mcip files

#extn=${M3MCASE}.${M3GRID}km
extn=2002
GC2file=GRIDCRO2D_${G1_DAY}_${extn}.${M3GRID}km
GD2file=GRIDDOT2D_${G1_DAY}_${extn}.${M3GRID}km
MC2file=METCRO2D_${G1_DAY}_${extn}.${M3GRID}km
MD3file=METDOT3D_${G1_DAY}_${extn}.${M3GRID}km
MC3file=METCRO3D_${G1_DAY}_${extn}.${M3GRID}km
MB3file=METBDY3D_${G1_DAY}_${extn}.${M3GRID}km

TR_DVpath=$METpath
```

```
TR_DVfile=$MC2file

 # 7-level photolysis data w/ file header

JVALfile=JTABLE_${CHEM}_${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

#time $EXEDIR/$EXEC
#if you're submitting to grid engine then the machines file is generated
automatically
#/usr/bin/time /home/aqm/models.linux/mpich-1.2.5/$COMPILER/bin/mpirun -v \
#-machinefile $TMPDIR/machines -np $NPROCS $EXEDIR/$EXEC
#/usr/bin/time /home/aqm/models.linux/mpich-1.2.5/$compiler/bin/mpirun -v \
#-machinefile machines -np $NPROCS $EXEDIR/$EXEC

#date
#cat machines

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

date
```

CMAQ v4.4 Final Basecase (June-12km)
run.June02.baseD.master.12km

```
#!/bin/bash
#
#  --- define the machines that will run the application
#
#cat << ieof > machines
#node1
#node1
#node2
#node2
#node3
#ieof
#
#  --- calculate number of PROCS based on machines file
#
NPROCS='1'
#NPROCS=`wc -l machines | awk '{print $1+1}'`
export 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=2002161     #first day

export NEW_START=false  #always FALSE for restart
start_date=2002169      #restart from this day

end_date=2002175       #last day
echo "START/END DATE: $start_date - $end_date"


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

export VERS=v44
export SOLV=ebi

export M3YEAR=2002
export M3PLAN=stlouis
export EPISODE=June02
export M3CASE=baseD
export CHEM=cbiv
# emissions case
export M3ECASE=b4_cmaq
export M3EXTN=${M3PLAN}_${M3CASE}
#
export M3MCASE=v02_aaa
#
export M3GRID=12
export M3VLEV=16
```

```
#export
APPL=${VERS}_cb4_${SOLV}_${M3GRID}k_${M3VLEV}L_mpi_${compiler}_kz1_massp_acon
c
export APPL=${VERS}_cb4_${SOLV}_StLouis${M3GRID}k_${M3VLEV}L_${compiler}
export CFG=$APPL
export EXEDIR=/model/cmaq_4.4/scripts/cctm
export EXEC=CCTM_${CFG}


##############
# File paths
##############
#
#export M3INPUT=$PATH/CMAQ/inputs
export M3INPUT=/raid2a/ENVIRON

# emissions files location
export EMISpath=/raid1a/edss/data_stlb4/run_b4_cmaq/output/merge

# output files location
export
M3OUT=/model/cmaq_4.4/outputs/${VERS}_${SOLV}_${M3CASE}_${M3GRID}/$EPISODE
mkdir -p $M3OUT/LOGS

# initial conditions file location
export GC_ICpath=$M3INPUT/icbc/ic_from_cenrap_cmaq_36km/episode_1
#export GC_ICpath=$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=/model/cmaq_4.4/outputs/${VERS}_${SOLV}_${M3CASE}_36/${EPISODE}/BCO
N

# Met files location
export METpath=/raid1a/MCIP/June10-24/${M3GRID}kmphoto
#export METpath=$M3INPUT/mcip/$M3GRID


###############
#  File names
###############
# initial conditions file
#export GC_ICfile=ICON_v422_${M3GRID}k_${M3VLEV}L_profile
export GC_ICfile=ICON_v44_cb4_${M3GRID}k_16L_St_Louis.2002161

# 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

   # check whether this is a cold start (first day of modeling)
   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 $STDATE | sed -e 's/ //g')
   export GC_BCfile=BCON_STL_v44_cb4_ebi_ae3_${M3GRID}km_$TODAY

   # 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 > $RUN_LOG.$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
```

CMAQ v4.4 Final Basecase (June-12km)
run.cctm.12km

```
#!/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.${M3GRID}km
#export GRID_NAME=US_${M3GRID}_${M3VLEV}L
export GRID_NAME=12km_GRID

# 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 A25J A25I ACORS ASEAS ASOIL"


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


G_DAY=$(./j2g $STDATE | sed -e 's/ //g')
# works for July/August
if [ "$STDATE" -le "2002212" ]; then
  G1_DAY=$(./j2g $STDATE | sed -e 's/2002 07 /07_/g')
fi
#if [ "$STDATE" -ge "2002213" ]; then
#  G1_DAY=$(./j2g $STDATE | sed -e 's/2002 08 /08_/g')
#fi
#G1_DAY=$(./j2g $STDATE | sed -e 's/2002 06 /06_/g')

# input files and directories

# emis files

#EMISfile=egts_l.${G_DAY}.${M3GRID}.${M3ECASE}.${G_DAY}.ncf
EMISfile=egts3d_l.${G_DAY}.1.${M3GRID}km_photo.b4_cmaq.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_${CHEM}_${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
#time $EXEDIR/$EXEC
#if you're submitting to grid engine then the machines file is generated
automatically
#/usr/bin/time /home/aqm/models.linux/mpich-1.2.5/$COMPILER/bin/mpirun -v \
#-machinefile $TMPDIR/machines -np $NPROCS $EXEDIR/$EXEC
#/usr/bin/time /home/aqm/models.linux/mpich-1.2.5/$compiler/bin/mpirun -v \
#-machinefile machines -np $NPROCS $EXEDIR/$EXEC

#date
#cat machines

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

date
```

CMAQ v4.4 Final Basecase (June-4km)
run.June02.baseD.master.4km

```
#!/bin/bash
#
#  --- define the machines that will run the application
#
#cat << ieof > machines
#node1
#node1
#node2
#node2
#node3
#ieof
#
#  --- calculate number of PROCS based on machines file
#
NPROCS='1'
#NPROCS=`wc -l machines | awk '{print $1+1}'`
export NPROCS
#
# Set this to whatever compiler produced your executable
export compiler=pg
#export compiler=intel


#   set the simulation period

#xport NEW_START=true   #always TRUE on first day
#tart_date=2002161     #first day

export NEW_START=false  #always FALSE for restart
start_date=2002169      #restart from this day

end_date=2002175       #last day
echo "START/END DATE: $start_date - $end_date"


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

export VERS=v44
export SOLV=ebi

export M3YEAR=2002
export M3PLAN=stlouis
export EPISODE=June02
export M3CASE=baseD
export CHEM=cbiv
# emissions case
export M3ECASE=b4_cmaq
export M3EXTN=${M3PLAN}_${M3CASE}
#
export M3MCASE=v02_aaa
#
export M3GRID=04
export M3GRD=4
export M3VLEV=16
```

```
#export
APPL=${VERS}_cb4_${SOLV}_${M3GRID}k_${M3VLEV}L_mpi_${compiler}_kz1_massp_acon
c
export APPL=${VERS}_cb4_${SOLV}_StLouis${M3GRD}k_${M3VLEV}L_${compiler}
export CFG=$APPL
export EXEDIR=/model/cmaq_4.4/scripts/cctm
export EXEC=CCTM_${CFG}


##############
# File paths
##############
#
#export M3INPUT=$PATH/CMAQ/inputs
export M3INPUT=/raid2a/ENVIRON

# emissions files location
export EMISpath=/raid1a/edss/data_stlb4/run_b4_cmaq/output/merge

# output files location
export
M3OUT=/model/cmaq_4.4/outputs/${VERS}_${SOLV}_${M3CASE}_${M3GRID}/$EPISODE
mkdir -p $M3OUT/LOGS

# initial conditions file location
export GC_ICpath=$M3INPUT/icbc/ic_from_cenrap_cmaq_36km/episode_1
#export GC_ICpath=$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=/model/cmaq_4.4/outputs/${VERS}_${SOLV}_${M3CASE}_12/${EPISODE}/BCO
N

# Met files location
export METpath=/raid1a/MCIP/June10-24/${M3GRD}km
#export METpath=$M3INPUT/mcip/$M3GRID


###############
#  File names
###############
# initial conditions file
#export GC_ICfile=ICON_v422_${M3GRID}k_${M3VLEV}L_profile
export GC_ICfile=ICON_v44_cb4_${M3GRID}k_16L_St_Louis.2002161

# 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

   # check whether this is a cold start (first day of modeling)
   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 $STDATE | sed -e 's/ //g')
   export GC_BCfile=BCON_STL_v44_cb4_ebi_ae3_${M3GRD}km_$TODAY

   # 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.4km > $RUN_LOG.$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
```

CMAQ v4.4 Final Basecase (June-4km)
run.cctm.4km

```
#!/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}


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


# horizontal grid defn
export GRIDDESC=../GRIDDESC.${M3GRD}km
#export GRID_NAME=US_${M3GRID}_${M3VLEV}L
export GRID_NAME=4km_GRID

# 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 A25J A25I ACORS ASEAS ASOIL"


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


G_DAY=$(./j2g $STDATE | sed -e 's/ //g')
# works for July/August
if [ "$STDATE" -le "2002212" ]; then
  G1_DAY=$(./j2g $STDATE | sed -e 's/2002 07 /07_/g')
fi
#if [ "$STDATE" -ge "2002213" ]; then
#  G1_DAY=$(./j2g $STDATE | sed -e 's/2002 08 /08_/g')
#fi
#G1_DAY=$(./j2g $STDATE | sed -e 's/2002 06 //g')

# input files and directories

# emis files

#EMISfile=egts_l.${G_DAY}.${M3GRID}.${M3ECASE}.${G_DAY}.ncf
#12km includes photo
EMISfile=egts_l.$STDATE.1.${M3GRID}k_photo.stl${M3GRID}kmerge.cmaq.cb4p25.ncf
#EMISfile=egts_l.$STDATE.1.${M3GRD}k.stl${M3GRD}kmerge.cmaq.cb4p25.ncf
EMISfile=egts3d_l.${G_DAY}.1.${M3GRD}km.b4_cmaq.ncf

# mcip files

#extn=${M3MCASE}.${M3GRID}km
extn=2002.04km
GC2file=GRIDCRO2D_${G1_DAY}_${extn}
GD2file=GRIDDOT2D_${G1_DAY}_${extn}
MC2file=METCRO2D_${G1_DAY}_${extn}
MD3file=METDOT3D_${G1_DAY}_${extn}
MC3file=METCRO3D_${G1_DAY}_${extn}
MB3file=METBDY3D_${G1_DAY}_${extn}
```

```
TR_DVpath=$METpath
TR_DVfile=$MC2file


# 7-level photolysis data w/ file header

JVALfile=JTABLE_${CHEM}_${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
#time $EXEDIR/$EXEC
#if you're submitting to grid engine then the machines file is generated
automatically
#/usr/bin/time /home/aqm/models.linux/mpich-1.2.5/$COMPILER/bin/mpirun -v \
#-machinefile $TMPDIR/machines -np $NPROCS $EXEDIR/$EXEC
#/usr/bin/time /home/aqm/models.linux/mpich-1.2.5/$compiler/bin/mpirun -v \
#-machinefile machines -np $NPROCS $EXEDIR/$EXEC

#date
#cat machines

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

date
```