Four Factor Analysis: Black Hills Corporation – Ben French

Black Hills Corporation operates the Ben French electric coal-fired power plant in Rapid City, South Dakota. The Wind Cave National Park is approximately 55 kilometers south southwest and the Badlands National Park is approximately 70 kilometers east southeast of the facility. DENR modeled the main boiler stack based on actual emissions for calendar year 2002. The modeling was conducted in order to estimate the visibility impacts of the main boiler stack's air emissions on the Wind Cave and Badlands National Parks.

EPA promulgated the CALPUFF modeling system as a *Guideline Model* for Class I impact assessments and other long range transport applications or near field applications involving complex flows (U.S. EPA, 2000). The model is also recommended by both the Federal Land Managers (FLM) Air Quality Workgroup (FLAG, 2010) and the Interagency Workgroup on Air Quality Modeling (IWAQM, 1998). As described in EPA's Guideline on Air Quality Models (Appendix W of 40 CFR Part 51), long-range transport is defined as modeling with source receptor distances greater than 50 kilometers.

The CALPUFF modeling system consists of a meteorological data pre-processor (CALMET), the air dispersion model (CALPUFF), and post-processor program (CALPOST). DENR's modeling analysis was performed with EPA's approved Version 5.8 of the CALMET and CALPUFF models. Version 6.221 of CALPOST was used because it contains the FLM-approved implementation of Visibility Method 8 (FLAG, 2008).

Table H-1 displays the modeled emission rates for each scenario. The other stack parameters are available for review in the CALPUFF control file included as Appendix H-1.

Table H-1 – Main Boiler Stack's Actual Emissions

Scenario	Filterable PM_{10}	SO_2	NOx
2002 Emissions	6.80 pounds/hour	197 pounds/hour	228 pounds/hour

DENR calculated emission rates for condensible particulate matter 10 microns in diameter or less (PM_{10}) emissions and speciation of the filterable and condensible fraction of PM_{10}, as shown in Table H-2. The speciation is based on recommendations for modeling PM_{10} speciation for pulverized coal-fired boilers (cyclone furnace boilers with PM_{10} controlled by electrostatic precipitators). Workbooks and instructions are available for several types of coal-fired boilers at the following National Park Service website:

http://www.nature.nps.gov/air/permits/ect/ectCoalFiredBoiler.cfm#workbooks

Table H-2 – PM_{10} Speciation

Particle Size (microns)	CALPUFF Species Designation	Emission Rate (pounds/hour)	Mass Fraction of Total PM_{10}
Condensible Inorganic [1]	SO_4	8.17	0.48
10-6	PM800	1.19	0.07
6-2.5	PM425	1.98	0.12

Particle Size (microns)	CALPUFF Species Designation	Emission Rate (pounds/hour)	Mass Fraction of Total PM_{10}
2.5-1.25	PM187	1.43	0.08
1.25-1	PM112	0.48	0.03
1-0.625	PM081	2.62	0.15
0.625-0	PM056	1.19	0.07

[1] - Assumed less than 1 micron.

The PM_{10} speciation values in Table H-2 were used in the evaluation.

DENR used the preprocessed CALMET.dat modeling files for calendar years 2002, 2006, and 2007, as submitted with the Modeling Report for a BART Assessment of the Big Stone I Coal-Fired Power Plant, Big Stone City, South Dakota in October 2009. Detailed discussion of the development of the data processing and CALMET settings used is available in the report (see Appendix B of this document). The CALMET processing was reviewed and approved by EPA and follows EPA's recommended CALMET switches issued August 31, 2009.

Regulatory default and or recommended visibility modeling settings were used in the CALPUFF input files for the technical options. Table H-3 lists key user-defined CALPUFF settings that were selected as well as the applicable default settings.

Table H-3 – Key CALPUFF Switch Settings

Parameter	Description	Default Value	DENR Value	Notes
Group 1 – General Options				
NSPEC	Number of chemical species	5	11	Particulate matter speciation discussed above
NSE	Number of species emitted	3	9	
METFM	Meteorological data format	1	1	1 = CALMET file
PGTIME	Pasquill-Gifford (PG) averaging time	60	60	Minutes
MGAUSS	Near-field vertical distribution	1	1	1 = Gaussian
MCTADJ	Terrain adjustments to plume path	3	3	3 = Partial plume path adjustment
MCHEM	Chemical mechanism flag	1	1	1 = MESOPUFF II chemistry
MDISP	Method for dispersion coefficients	3	3	3 = PG for rural and McElroy-Pooler (MP) for urban
MREG	Regulatory default checks	1	1	1 = Technical options must conform to EPA Long Range Transport guidance

Parameter	Description	Default Value	DENR Value	Notes
SYTDEP	Equations used to determine sigma-y and -z	550	550	Puff size (m) beyond which equations (Heffter) are used to determine sigma y and z
MHFTSZ	Heffter equation for sigma z	0	0	0 = Not use Heffter

Receptor locations and elevations for the potentially affected Class I areas were obtained from the National Park Service's Nature and Science website. The modeled receptor grids for each potentially affected Class I are shown relative to the source location in Figure H-1 below along with the surface roughness lengths. The receptors numbered 1 through 189 in the modeling files correspond to the Wind Cave National Park and receptors numbered 1 through 289 correspond to the Badlands National Park.

To allow chemical transformations within CALPUFF with the recommended chemistry scheme (MESOPUFF II), the model required input of background ozone and ammonia. For ozone, hourly data collected from EPA's Air Quality System and Clean Air Status and Trends Network (CASTNET) databases was used. For any hour that was missing ozone data, the CALPUFF default value of 80 parts per billion was substituted.

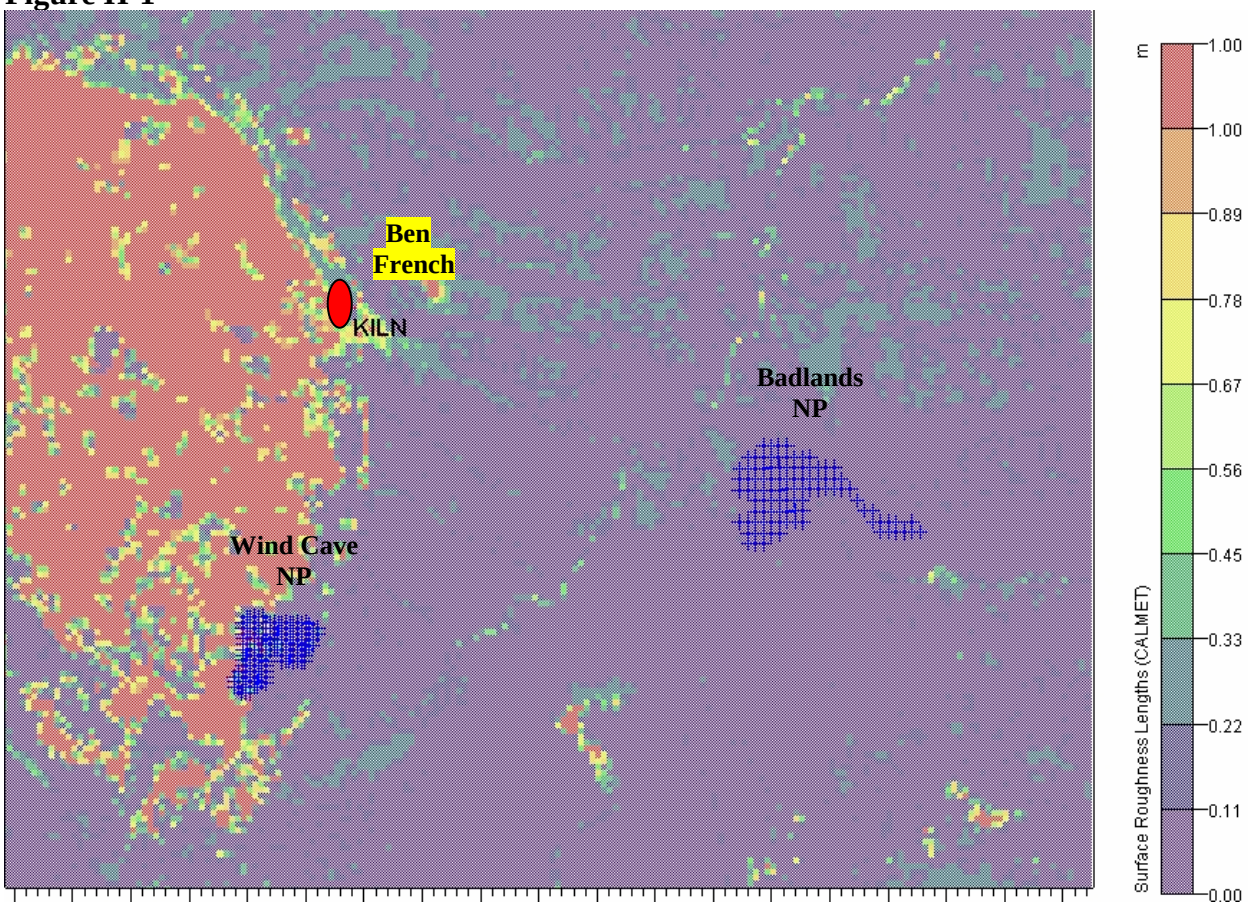
Along with ozone data, monthly average ammonia background values are required by the model. The background ammonia concentration used for the analysis was based on IWAQM Phase II guidance document (USEPA, 1998) list of suggested values. This document provides the following values for background ammonia concentrations:

1. Grasslands – 10 parts per billion;
2. Forest – 0.5 parts per billion; and
3. Arid Lands at 20°C – 1 parts per billion.

The chemical equilibrium between particle-phase ammonium nitrate and gas-phase nitric acid and ammonia has a fast reaction rate. Therefore, the local ammonia concentrations in the Class I areas themselves are the relevant factor of interest, not the ammonia concentrations across the entire domain. At the Wind Cave National Park the predominant land use is forest, while at the Badlands National Park the predominant land use is barren land and tundra (arid). A background ammonia concentration of 1.0 part per billion was used for both National Parks.

POSTUTIL is a post processing program used to process the concentrations generated by CALPUFF. POSTUTIL occurs prior to the visibility processing in CALPOST and allows the user to sum the contributions of sources from different CALPUFF simulations into a total concentration file. In addition, it contains options to scale the concentrations from different modeled species (e.g., different particle sizes) into species dependent size distributions for the particulate matter. For example, emission rates for each total particulate particle size category (e.g., PM800, PM425) were modeled in CALPUFF and, in the POSTUTIL stage; these are redistributed into the light scattering groups input into CALPOST.

Figure H-1



POSTUTIL requires the user to input the fractional distribution of the particulate emissions. DENR used the fractional distribution shown in Table H-4, based on the information in the National Park Service workbook for particulate matter speciation.

Table H-4 – PM10 Speciation

CALPUFF Inputs Total Particulate Sizes	POSTUTIL Group	Fractional Distribution POSTUTIL Inputs			
SO4	SO4 (Sulfates)	SOIL [1]	SOA [2]	EC [3]	PMC [4]
PM800	100% PM Coarse	0.00	0.00	0.00	1.00
PM425	100% PM Coarse	0.00	0.00	0.00	1.00
PM187	100% SOIL	1.00	0.00	0.00	0.00
PM112	100% SOIL	1.00	0.00	0.00	0.00
PM081	61% SOIL (filterable) and 39% SOA (condense)	0.61	0.39	0.00	0.00
PM056	13% EC and 87% SOA	0.00	0.87	0.13	0.00

[1] – PM Coarse means filterable particulates between 10 and 2.5 microns;
[2] – SOIL means filterable fine particulates (between 2.5 and 0.625 microns);
[3] – SOA means Secondary organic aerosol; and

[4] – EC means filterable fine particulates smaller than 0.625 microns.

Class I impacts for the main boiler's different PM_{10} size fractions and primary sulfate impacts were summed using the POSTUTIL program and distributed into the POSTUTIL groups with known light extinction values (e.g., PM coarse, PM fine) prior to running CALPOST. Appendix H-2 contains an example POSTUTIL output file. This output file shows all of the POSTUTIL options employed for the analysis.

Calculations of the impact of the simulated plume particulate matter component concentrations on light extinction were carried out with the CALPOST postprocessor following the FLAG 2008 and 2010 guidance. In CALPOST, the IMPROVE algorithm as proposed by FLAG 2008 is implemented as CALPOST Method 8. The FLAG 2008 and methodology is included in CALPOST V6.221 Level 080724, which has been reviewed and approved by the FLMs. This version of CALPOST is publicly available on the TRC's CALPUFF website http://www.src.com/calpuff/calpuff1.htm and was used for this analysis.

Default settings or settings recommended under regulatory guidance were used in the CALPOST input files for the technical options. Table H-5 lists key user-defined CALPOST settings selected as well as the applicable default settings. A full CALPOST control file is included as Appendix H-3.

Table H-5 – CALPOST Switch Settings

Parameter	Description	Default Value	DENR Value	Notes
Group 1				
ASPEC	Species to process	No Default	VISIB	Visibility processing
Group 2				
MFRH	Particle growth curve f(RH)	4	4	4 = IMPROVE (2006) f(RH) tabulations for sea salt and for sulfate and nitrate particles
RHMAX	Maximum relative humidity (%) in growth curve	98	95	FLAG (2008) guidance
Modeled Species				
LVSO4	Include sulfate	T	T	
LVNO3	Include nitrate	T	T	
LVNO2	Include nitrogen dioxide absorption	T	T	
LVOC	Include organic carbon	T	T	
LVPMC	Include coarse particulates	T	T	
LVPMF	Include fine particulates	T	T	
LVEC	Include elemental carbon	T	T	

Parameter	Description	Default Value	DENR Value	Notes
Extinction Efficiency				
EEPMC	Particulate matter coarse	0.6	0.6	
EEPMF	Particulate matter fine	1.0	1.0	
EEPMCBK	Particulate matter coarse background	0.6	0.6	Background particulate species
EESO4	Ammonium sulfate	3.0	3.0	
EENO3	Ammonium nitrate	3.0	3.0	
EEOC	Organic carbon	4.0	4.0	
EESOIL	Soil	1.0	1.0	
EEEC	Elemental carbon	10.0	10.0	

DENR applied each emissions scenario to three years of meteorological data to compare the change in visibility impacts predicted at the Badlands or Wind Cave National Parks. The results are displayed in Table H-6. The values in Table H-6 represent the eighth highest modeled impact per year.

Table H-6 – Summary – 8th High Modeled Delta-Deciview

Year	Badlands	Wind Cave
2002	0.21	0.22
2006	0.23	0.23
2007	0.20	0.30

Appendix H-1 – CALPUFF Control File

```
                                          CALPUFF       Version: 5.8            Level:
070623

*****************************************************************************************
*****************************************


  Clock time: 12:40:52
        Date: 12-29-2010

 Internal Coordinate Transformations by  ---  COORDLIB   Version: 1.98   Level: 060911

  Run Title:
     Based on Aug 2010 runs but , MSAM=99, sl2p5=10
     Calmet.dat files from BS oct2009 submittal
     Calpuff v5.8, Calpost v 6, postutil speciate

--------------------------------------------------------------------------------

 INPUT GROUP: 1 -- General run control parameters
 --------------

     Option to run all periods found
     in the met. file     (METRUN)   Default: 0       ! METRUN = 0 !

          METRUN = 0 - Run period explicitly defined below
          METRUN = 1 - Run all periods in met. file

      Starting date:   Year (IBYR) -- No default       ! IBYR = 2002 !
      (used only if   Month (IBMO) -- No default       ! IBMO = 1 !
       METRUN = 0)      Day (IBDY) -- No default       ! IBDY = 1 !
                       Hour (IBHR) -- No default       ! IBHR = 1 !

      Base time zone        (XBTZ) -- No default       ! XBTZ = 7 !
         PST = 8., MST = 7.
         CST = 6., EST = 5.

      Length of run (hours) (IRLG) -- No default       ! IRLG = 8736 !

      Number of chemical species (NSPEC)
                                        Default: 5       ! NSPEC = 11 !

      Number of chemical species
      to be emitted  (NSE)            Default: 3       ! NSE = 9 !

      Flag to stop run after
      SETUP phase (ITEST)             Default: 2       ! ITEST = 2 !
      (Used to allow checking
      of the model inputs, files, etc.)
            ITEST = 1 - STOPS program after SETUP phase
            ITEST = 2 - Continues with execution of program
                        after SETUP

      Restart Configuration:

         Control flag (MRESTART)      Default: 0       ! MRESTART = 0 !

            0 = Do not read or write a restart file
            1 = Read a restart file at the beginning of
                the run
            2 = Write a restart file during run
            3 = Read a restart file at beginning of run
                and write a restart file during run
```

```
   Number of periods in Restart
   output cycle (NRESPD)        Default: 0       ! NRESPD = 500 !

      0 = File written only at last period
     >0 = File updated every NRESPD periods

Meteorological Data Format (METFM)
                                Default: 1       ! METFM = 1 !

      METFM = 1 - CALMET binary file (CALMET.MET)
      METFM = 2 - ISC ASCII file (ISCMET.MET)
      METFM = 3 - AUSPLUME ASCII file (PLMMET.MET)
      METFM = 4 - CTDM plus tower file (PROFILE.DAT) and
                  surface parameters file (SURFACE.DAT)
      METFM = 5 - AERMET tower file (PROFILE.DAT) and
                  surface parameters file (SURFACE.DAT)

Meteorological Profile Data Format (MPRFFM)
       (used only for METFM = 1, 2, 3)
                                Default: 1       ! MPRFFM = 1 !

      MPRFFM = 1 - CTDM plus tower file (PROFILE.DAT)
      MPRFFM = 2 - AERMET tower file (PROFILE.DAT)

PG sigma-y is adjusted by the factor (AVET/PGTIME)**0.2
Averaging Time (minutes) (AVET)
                                Default: 60.0    ! AVET = 60 !
PG Averaging Time (minutes) (PGTIME)
                                Default: 60.0    ! PGTIME = 60 !


 !END!
-------------------------------------------------
 NOTICE: Starting year in control file sets the
        expected century for the simulation.  All
        YY years are converted to YYYY years in
        the range:  1952 2005
 ------------------------------------------------------------------------------

 INPUT GROUP: 2 -- Technical options
 --------------

Vertical distribution used in the
near field (MGAUSS)                 Default: 1     ! MGAUSS = 1 !
   0 = uniform
   1 = Gaussian

Terrain adjustment method
(MCTADJ)                            Default: 3     ! MCTADJ = 3 !
   0 = no adjustment
   1 = ISC-type of terrain adjustment
   2 = simple, CALPUFF-type of terrain
       adjustment
   3 = partial plume path adjustment

Subgrid-scale complex terrain
flag (MCTSG)                        Default: 0     ! MCTSG = 0 !
   0 = not modeled
   1 = modeled

Near-field puffs modeled as
elongated slugs? (MSLUG)            Default: 0     ! MSLUG = 0 !
```

```
   0 = no
   1 = yes (slug model used)

Transitional plume rise modeled?
(MTRANS)                              Default: 1     ! MTRANS = 1 !
   0 = no  (i.e., final rise only)
   1 = yes (i.e., transitional rise computed)

Stack tip downwash? (MTIP)            Default: 1     ! MTIP = 1 !
   0 = no  (i.e., no stack tip downwash)
   1 = yes (i.e., use stack tip downwash)

Method used to simulate building
downwash? (MBDW)                      Default: 1     ! MBDW = 1 !
   1 = ISC method
   2 = PRIME method

Vertical wind shear modeled above
stack top? (MSHEAR)                   Default: 0     ! MSHEAR = 0 !
   0 = no  (i.e., vertical wind shear not modeled)
   1 = yes (i.e., vertical wind shear modeled)

Puff splitting allowed? (MSPLIT)      Default: 0     ! MSPLIT = 0 !
   0 = no (i.e., puffs not split)
   1 = yes (i.e., puffs are split)

Chemical mechanism flag (MCHEM)       Default: 1     ! MCHEM = 1 !
   0 = chemical transformation not
       modeled
   1 = transformation rates computed
       internally (MESOPUFF II scheme)
   2 = user-specified transformation
       rates used
   3 = transformation rates computed
       internally (RIVAD/ARM3 scheme)
   4 = secondary organic aerosol formation
       computed (MESOPUFF II scheme for OH)

Aqueous phase transformation flag (MAQCHEM)
(Used only if MCHEM = 1, or 3)        Default: 0     ! MAQCHEM = 0 !
   0 = aqueous phase transformation
       not modeled
   1 = transformation rates adjusted
       for aqueous phase reactions

Wet removal modeled ? (MWET)          Default: 1     ! MWET = 1 !
   0 = no
   1 = yes

Dry deposition modeled ? (MDRY)       Default: 1     ! MDRY = 1 !
   0 = no
   1 = yes
   (dry deposition method specified
    for each species in Input Group 3)

Gravitational settling (plume tilt)
modeled ? (MTILT)                     Default: 0     ! MTILT = 0 !
   0 = no
   1 = yes
   (puff center falls at the gravitational
    settling velocity for 1 particle species)

Restrictions:
```

```
    - MDRY  = 1
    - NSPEC = 1  (must be particle species as well)
    - sg    = 0  GEOMETRIC STANDARD DEVIATION in Group 8 is
                 set to zero for a single particle diameter

Method used to compute dispersion
coefficients (MDISP)                  Default: 3     ! MDISP = 3 !

   1 = dispersion coefficients computed from measured values
       of turbulence, sigma v, sigma w
   2 = dispersion coefficients from internally calculated
       sigma v, sigma w using micrometeorological variables
       (u*, w*, L, etc.)
   3 = PG dispersion coefficients for RURAL areas (computed using
       the ISCST multi-segment approximation) and MP coefficients in
       urban areas
   4 = same as 3 except PG coefficients computed using
       the MESOPUFF II eqns.
   5 = CTDM sigmas used for stable and neutral conditions.
       For unstable conditions, sigmas are computed as in
       MDISP = 3, described above.  MDISP = 5 assumes that
       measured values are read

Sigma-v/sigma-theta, sigma-w measurements used? (MTURBVW)
(Used only if MDISP = 1 or 5)         Default: 3     ! MTURBVW = 3 !
   1 = use sigma-v or sigma-theta measurements
       from PROFILE.DAT to compute sigma-y
       (valid for METFM = 1, 2, 3, 4, 5)
   2 = use sigma-w measurements
       from PROFILE.DAT to compute sigma-z
       (valid for METFM = 1, 2, 3, 4, 5)
   3 = use both sigma-(v/theta) and sigma-w
       from PROFILE.DAT to compute sigma-y and sigma-z
       (valid for METFM = 1, 2, 3, 4, 5)
   4 = use sigma-theta measurements
       from PLMMET.DAT to compute sigma-y
       (valid only if METFM = 3)

Back-up method used to compute dispersion
when measured turbulence data are
missing (MDISP2)                      Default: 3     ! MDISP2 = 3 !
(used only if MDISP = 1 or 5)
   2 = dispersion coefficients from internally calculated
       sigma v, sigma w using micrometeorological variables
       (u*, w*, L, etc.)
   3 = PG dispersion coefficients for RURAL areas (computed using
       the ISCST multi-segment approximation) and MP coefficients in
       urban areas
   4 = same as 3 except PG coefficients computed using
       the MESOPUFF II eqns.

[DIAGNOSTIC FEATURE]
Method used for Lagrangian timescale for Sigma-y
(used only if MDISP=1,2 or MDISP2=1,2)
(MTAULY)                              Default: 0     ! MTAULY = 0 !
   0 = Draxler default 617.284 (s)
   1 = Computed as Lag. Length / (.75 q) -- after SCIPUFF
  10 <Direct user input (s)             -- e.g., 306.9


[DIAGNOSTIC FEATURE]
Method used for Advective-Decay timescale for Turbulence
(used only if MDISP=2 or MDISP2=2)
```

```
(MTAUADV)                              Default: 0     ! MTAUADV = 0 !
   0 = No turbulence advection
   1 = Computed (OPTION NOT IMPLEMENTED)
  10 <Direct user input (s)   -- e.g., 300


Method used to compute turbulence sigma-v &
sigma-w using micrometeorological variables
(Used only if MDISP = 2 or MDISP2 = 2)
(MCTURB)                               Default: 1     ! MCTURB = 1 !
   1 = Standard CALPUFF subroutines
   2 = AERMOD subroutines

PG sigma-y,z adj. for roughness?       Default: 0     ! MROUGH = 0 !
(MROUGH)
   0 = no
   1 = yes

Partial plume penetration of           Default: 1     ! MPARTL = 1 !
elevated inversion?
(MPARTL)
   0 = no
   1 = yes

Strength of temperature inversion      Default: 0     ! MTINV = 0 !
provided in PROFILE.DAT extended records?
(MTINV)
   0 = no (computed from measured/default gradients)
   1 = yes

PDF used for dispersion under convective conditions?
                                       Default: 0     ! MPDF = 0 !
(MPDF)
   0 = no
   1 = yes

Sub-Grid TIBL module used for shore line?
                                       Default: 0     ! MSGTIBL = 0 !
(MSGTIBL)
   0 = no
   1 = yes

Boundary conditions (concentration) modeled?
                                       Default: 0     ! MBCON = 0 !
(MBCON)
   0 = no
   1 = yes, using formatted BCON.DAT file
   2 = yes, using unformatted CONC.DAT file

Note:  MBCON > 0 requires that the last species modeled
       be 'BCON'.  Mass is placed in species BCON when
       generating boundary condition puffs so that clean
       air entering the modeling domain can be simulated
       in the same way as polluted air.  Specify zero
       emission of species BCON for all regular sources.

Individual source contributions saved?
                                       Default: 0     ! MSOURCE = 0 !
(MSOURCE)
   0 = no
   1 = yes

Analyses of fogging and icing impacts due to emissions from
```

```
      arrays of mechanically-forced cooling towers can be performed
      using CALPUFF in conjunction with a cooling tower emissions
      processor (CTEMISS) and its associated postprocessors.  Hourly
      emissions of water vapor and temperature from each cooling tower
      cell are computed for the current cell configuration and ambient
      conditions by CTEMISS. CALPUFF models the dispersion of these
      emissions and provides cloud information in a specialized format
      for further analysis. Output to FOG.DAT is provided in either
      'plume mode' or 'receptor mode' format.

      Configure for FOG Model output?
                                          Default: 0     ! MFOG = 0 !
      (MFOG)
         0 = no
         1 = yes  - report results in PLUME Mode format
         2 = yes  - report results in RECEPTOR Mode format


      Test options specified to see if
      they conform to regulatory
      values? (MREG)                      Default: 1     ! MREG = 1 !

         0 = NO checks are made
         1 = Technical options must conform to USEPA
             Long Range Transport (LRT) guidance
                        METFM    1 or 2
                        AVET     60. (min)
                        PGTIME   60. (min)
                        MGAUSS   1
                        MCTADJ   3
                        MTRANS   1
                        MTIP     1
                        MCHEM    1 or 3 (if modeling SOx, NOx)
                        MWET     1
                        MDRY     1
                        MDISP    2 or 3
                        MPDF     0 if MDISP=3
                                 1 if MDISP=2
                        MROUGH   0
                        MPARTL   1
                        SYTDEP   550. (m)
                        MHFTSZ   0
                        SVMIN    0.5 (m/s)


 !END!
--------------------------------------------------------------------------------
INPUT GROUP: 3a, 3b -- Species list
 --------------------------------
 Subgroup (3a)
 ------------

   The following species are modeled:

 ! CSPEC =          SO2 !            !END!
 ! CSPEC =          SO4 !            !END!
 ! CSPEC =          NOX !            !END!
 ! CSPEC =         HNO3 !            !END!
 ! CSPEC =          NO3 !            !END!
 ! CSPEC =        PM800 !            !END!
 ! CSPEC =        PM425 !            !END!
 ! CSPEC =        PM187 !            !END!
 ! CSPEC =        PM112 !            !END!
```

```
 ! CSPEC =        PM081 !            !END!
 ! CSPEC =        PM056 !            !END!

                                                          Dry                  OUTPUT GROUP
     SPECIES          MODELED          EMITTED       DEPOSITED                  NUMBER
      NAME         (0=NO, 1=YES)    (0=NO, 1=YES)    (0=NO,                  (0=NONE,
    (Limit: 12                                         1=COMPUTED-GAS         1=1st CGRUP,
     Characters                                        2=COMPUTED-PARTICLE    2=2nd CGRUP,
     in length)                                        3=USER-SPECIFIED)      3= etc.)

 !          SO2  =          1,               1,           1,                   0   !
 !          SO4  =          1,               1,           2,                   0   !
 !          NOX  =          1,               1,           1,                   0   !
 !         HNO3  =          1,               0,           1,                   0   !
 !          NO3  =          1,               0,           2,                   0   !
 !        PM800  =          1,               1,           2,                   0   !
 !        PM425  =          1,               1,           2,                   0   !
 !        PM187  =          1,               1,           2,                   0   !
 !        PM112  =          1,               1,           2,                   0   !
 !        PM081  =          1,               1,           2,                   0   !
 !        PM056  =          1,               1,           2,                   0   !


 !END!

   Note:  The last species in (3a) must be 'BCON' when using the
          boundary condition option (MBCON > 0).  Species BCON should
          typically be modeled as inert (no chem transformation or
          removal).

-------------
 Subgroup (3b)
 -------------
   The following names are used for Species-Groups in which results
   for certain species are combined (added) prior to output.  The
   CGRUP name will be used as the species name in output files.
   Use this feature to model specific particle-size distributions
   by treating each size-range as a separate species.
   Order must be consistent with 3(a) above.
-------------------------------------------------------------------------------
 INPUT GROUP: 4 -- Map Projection and Grid control parameters
 --------------

      Projection for all (X,Y):
      -------------------------

      Map projection
      (PMAP)                    Default: UTM    ! PMAP = LCC !

          UTM :  Universal Transverse Mercator
          TTM :  Tangential Transverse Mercator
          LCC :  Lambert Conformal Conic
           PS :  Polar Stereographic
           EM :  Equatorial Mercator
         LAZA :  Lambert Azimuthal Equal Area

      False Easting and Northing (km) at the projection origin
      (Used only if PMAP= TTM, LCC, or LAZA)
      (FEAST)                   Default=0.0     ! FEAST = 0 !
      (FNORTH)                  Default=0.0     ! FNORTH = 0 !

      UTM zone (1 to 60)
      (Used only if PMAP=UTM)
```

```
(IUTMZN)                    No Default      ! IUTMZN = 0 !

Hemisphere for UTM projection?
(Used only if PMAP=UTM)
(UTMHEM)                    Default: N      ! UTMHEM = N !
    N   :  Northern hemisphere projection
    S   :  Southern hemisphere projection

Latitude and Longitude (decimal degrees) of projection origin
(Used only if PMAP= TTM, LCC, PS, EM, or LAZA)
(RLAT0)                     No Default      ! RLAT0 = 40N !
(RLON0)                     No Default      ! RLON0 = 98W !

    TTM :  RLON0 identifies central (true N/S) meridian of projection
           RLAT0 selected for convenience
    LCC :  RLON0 identifies central (true N/S) meridian of projection
           RLAT0 selected for convenience
    PS  :  RLON0 identifies central (grid N/S) meridian of projection
           RLAT0 selected for convenience
    EM  :  RLON0 identifies central meridian of projection
           RLAT0 is REPLACED by 0.0N (Equator)
    LAZA:  RLON0 identifies longitude of tangent-point of mapping plane
           RLAT0 identifies latitude of tangent-point of mapping plane

Matching parallel(s) of latitude (decimal degrees) for projection
(Used only if PMAP= LCC or PS)
(XLAT1)                     No Default      ! XLAT1 = 20N !
(XLAT2)                     No Default      ! XLAT2 = 60N !

    LCC :  Projection cone slices through Earth's surface at XLAT1 and XLAT2
    PS  :  Projection plane slices through Earth at XLAT1
           (XLAT2 is not used)

----------
Note:  Latitudes and longitudes should be positive, and include a
       letter N,S,E, or W indicating north or south latitude, and
       east or west longitude.  For example,
       35.9  N Latitude  =  35.9N
       118.7 E Longitude = 118.7E

Datum-region
------------

The Datum-Region for the coordinates is identified by a character
string.  Many mapping products currently available use the model of the
Earth known as the World Geodetic System 1984 (WGS-84).  Other local
models may be in use, and their selection in CALMET will make its output
consistent with local mapping products.  The list of Datum-Regions with
official transformation parameters is provided by the National Imagery and
Mapping Agency (NIMA).

NIMA Datum - Regions(Examples)
------------------------------------------------------------------------------
WGS-84    WGS-84 Reference Ellipsoid and Geoid, Global coverage (WGS84)
NAS-C     NORTH AMERICAN 1927 Clarke 1866 Spheroid, MEAN FOR CONUS (NAD27)
NAR-C     NORTH AMERICAN 1983 GRS 80 Spheroid, MEAN FOR CONUS (NAD83)
NWS-84    NWS 6370KM Radius, Sphere
ESR-S     ESRI REFERENCE 6371KM Radius, Sphere

Datum-region for output coordinates
(DATUM)                     Default: WGS-84     ! DATUM = NWS-84 !

METEOROLOGICAL Grid:
```

```
      Rectangular grid defined for projection PMAP,
      with X the Easting and Y the Northing coordinate

            No. X grid cells (NX)      No default     ! NX = 313 !
            No. Y grid cells (NY)      No default     ! NY = 181 !
         No. vertical layers (NZ)      No default     ! NZ = 10 !

           Grid spacing (DGRIDKM)      No default     ! DGRIDKM = 4 !
                                       Units: km

                Cell face heights
                    (ZFACE(nz+1))      No defaults
                                       Units: m
    ! ZFACE =  0.0, 20.0, 40.0, 80.0, 160.0, 320.0, 640.0, 1200.0, 2000.0, 3000.0, 4000.0
!

             Reference Coordinates
            of SOUTHWEST corner of
                  grid cell(1, 1):

             X coordinate (XORIGKM)     No default     ! XORIGKM = -506 !
             Y coordinate (YORIGKM)     No default     ! YORIGKM = 298 !
                                       Units: km

COMPUTATIONAL Grid:

      The computational grid is identical to or a subset of the MET. grid.
      The lower left (LL) corner of the computational grid is at grid point
      (IBCOMP, JBCOMP) of the MET. grid.  The upper right (UR) corner of the
      computational grid is at grid point (IECOMP, JECOMP) of the MET. grid.
      The grid spacing of the computational grid is the same as the MET. grid.

         X index of LL corner (IBCOMP)      No default     ! IBCOMP = 1 !
                   (1 <= IBCOMP <= NX)

         Y index of LL corner (JBCOMP)      No default     ! JBCOMP = 1 !
                   (1 <= JBCOMP <= NY)


         X index of UR corner (IECOMP)      No default     ! IECOMP = 120 !
                   (1 <= IECOMP <= NX)

         Y index of UR corner (JECOMP)      No default     ! JECOMP = 120 !
                   (1 <= JECOMP <= NY)



 SAMPLING Grid (GRIDDED RECEPTORS):

      The lower left (LL) corner of the sampling grid is at grid point
      (IBSAMP, JBSAMP) of the MET. grid.  The upper right (UR) corner of the
      sampling grid is at grid point (IESAMP, JESAMP) of the MET. grid.
      The sampling grid must be identical to or a subset of the computational
      grid.  It may be a nested grid inside the computational grid.
      The grid spacing of the sampling grid is DGRIDKM/MESHDN.

         Logical flag indicating if gridded
         receptors are used (LSAMP)         Default: T     ! LSAMP = T !
         (T=yes, F=no)

         X index of LL corner (IBSAMP)      No default     ! IBSAMP = 1 !
          (IBCOMP <= IBSAMP <= IECOMP)
```

```
         Y index of LL corner (JBSAMP)      No default     ! JBSAMP = 1 !
          (JBCOMP <= JBSAMP <= JECOMP)


         X index of UR corner (IESAMP)      No default     ! IESAMP = 75 !
          (IBCOMP <= IESAMP <= IECOMP)

         Y index of UR corner (JESAMP)      No default     ! JESAMP = 75 !
          (JBCOMP <= JESAMP <= JECOMP)


        Nesting factor of the sampling
         grid (MESHDN)                      Default: 1     ! MESHDN = 1 !
         (MESHDN is an integer >= 1)

 !END!
--------------------------------------------------------------------------------

INPUT GROUP: 5 -- Output Options
 --------------
                                            *                          *
      FILE                       DEFAULT VALUE             VALUE THIS RUN
      ----                       -------------             --------------

    Concentrations (ICON)              1                   ! ICON = 1 !
    Dry Fluxes (IDRY)                  1                   ! IDRY = 1 !
    Wet Fluxes (IWET)                  1                   ! IWET = 1 !
    2D Temperature (IT2D)              0                   ! IT2D = 0 !
    2D Density (IRHO)                  0                   ! IRHO = 0 !
    Relative Humidity (IVIS)           1                   ! IVIS = 1 !
     (relative humidity file is
      required for visibility
      analysis)
    Use data compression option in output file?
    (LCOMPRS)                          Default: T          ! LCOMPRS = T !

    *
     0 = Do not create file, 1 = create file


     QA PLOT FILE OUTPUT OPTION:

        Create a standard series of output files (e.g.
        locations of sources, receptors, grids ...)
        suitable for plotting?
        (IQAPLOT)                      Default: 1          ! IQAPLOT = 1 !
          0 = no
          1 = yes

     DIAGNOSTIC MASS FLUX OUTPUT OPTIONS:

        Mass flux across specified boundaries
        for selected species reported hourly?
        (IMFLX)                        Default: 0          ! IMFLX = 0 !
          0 = no
          1 = yes (FLUXBDY.DAT and MASSFLX.DAT filenames
                   are specified in Input Group 0)

        Mass balance for each species
        reported hourly?
        (IMBAL)                        Default: 0          ! IMBAL = 0 !
          0 = no
```

```
          1 = yes (MASSBAL.DAT filename is
               specified in Input Group 0)

     LINE PRINTER OUTPUT OPTIONS:

        Print concentrations (ICPRT)    Default: 0         ! ICPRT = 0 !
        Print dry fluxes (IDPRT)        Default: 0         ! IDPRT = 0 !
        Print wet fluxes (IWPRT)        Default: 0         ! IWPRT = 0 !
        (0 = Do not print, 1 = Print)

        Concentration print interval
        (ICFRQ) in hours                Default: 1         ! ICFRQ = 1 !
        Dry flux print interval
        (IDFRQ) in hours                Default: 1         ! IDFRQ = 1 !
        Wet flux print interval
        (IWFRQ) in hours                Default: 1         ! IWFRQ = 1 !

        Units for Line Printer Output
        (IPRTU)                         Default: 1         ! IPRTU = 3 !
                       for              for
                  Concentration    Deposition
            1 =       g/m**3          g/m**2/s
            2 =      mg/m**3         mg/m**2/s
            3 =      ug/m**3         ug/m**2/s
            4 =      ng/m**3         ng/m**2/s
            5 =     Odour Units

        Messages tracking progress of run
        written to the screen ?
        (IMESG)                         Default: 2         ! IMESG = 2 !
          0 = no
          1 = yes (advection step, puff ID)
          2 = yes (YYYYJJJHH, # old puffs, # emitted puffs)


      SPECIES (or GROUP for combined species) LIST FOR OUTPUT OPTIONS

                    ---- CONCENTRATIONS ----   ------ DRY FLUXES ------   ------ WET FLUXES
------   -- MASS FLUX --
    SPECIES
    /GROUP         PRINTED?  SAVED ON DISK?   PRINTED?  SAVED ON DISK?   PRINTED?  SAVED
ON DISK?   SAVED ON DISK?
    -------        ------------------------   ------------------------   -----------------
-------   ---------------
 !          SO2 =     1,           1,           1,           1,           1,           1,
1   !
 !          SO4 =     1,           1,           1,           1,           1,           1,
1   !
 !          NOX =     1,           1,           1,           1,           1,           1,
1   !
 !         HNO3 =     1,           1,           1,           1,           1,           1,
1   !
 !          NO3 =     1,           1,           1,           1,           1,           1,
1   !
 !        PM800 =     1,           1,           1,           1,           1,           1,
0   !
 !        PM425 =     1,           1,           1,           1,           1,           1,
0   !
 !        PM187 =     1,           1,           1,           1,           1,           1,
0   !
 !        PM112 =     1,           1,           1,           1,           1,           1,
0   !
 !        PM081 =     1,           1,           1,           1,           1,           1,
```

```
0   !
 !        PM056 =     1,           1,           1,           1,           1,           1,
0   !
```

Note: Species BCON (for MBCON > 0) does not need to be saved on disk.

OPTIONS FOR PRINTING "DEBUG" QUANTITIES (much output)

Logical for debug output (LDEBUG)	Default: F	! LDEBUG = F !
First puff to track (IPFDEB)	Default: 1	! IPFDEB = 1 !
Number of puffs to track (NPFDEB)	Default: 1	! NPFDEB = 100 !
Met. period to start output (NN1)	Default: 1	! NN1 = 1 !
Met. period to end output (NN2)	Default: 10	! NN2 = 10 !

!END!

INPUT GROUP: 6a, 6b, & 6c -- Subgrid scale complex terrain inputs

Subgroup (6a)

Number of terrain features (NHILL)	Default: 0	! NHILL = 0 !
Number of special complex terrain receptors (NCTREC)	Default: 0	! NCTREC = 0 !
Terrain and CTSG Receptor data for CTSG hills input in CTDM format ? (MHILL) 1 = Hill and Receptor data created by CTDM processors & read from HILL.DAT and HILLRCT.DAT files 2 = Hill data created by OPTHILL & input below in Subgroup (6b); Receptor data in Subgroup (6c)	No Default	! MHILL = 2 !
Factor to convert horizontal dimensions to meters (MHILL=1)	Default: 1.0	! XHILL2M = 1.0 !
Factor to convert vertical dimensions to meters (MHILL=1)	Default: 1.0	! ZHILL2M = 1.0 !
X-origin of CTDM system relative to CALPUFF coordinate system, in Kilometers (MHILL=1)	No Default	! XCTDMKM = 0.0 !
Y-origin of CTDM system relative to CALPUFF coordinate system, in Kilometers (MHILL=1)	No Default	! YCTDMKM = 0.0 !

! END !

Subgroup (6b)

```
 ---------------
                      1 **
      HILL information


 HILL           XC        YC       THETAH  ZGRID  RELIEF    EXPO 1    EXPO 2   SCALE 1
SCALE 2    AMAX1     AMAX2
  NO.          (km)      (km)      (deg.)   (m)     (m)       (m)       (m)       (m)
(m)       (m)       (m)
 ----          ----      ----      ------  -----  ------    ------    ------   -------
-------    -----     -----

---------------
 Subgroup (6c)
 ---------------

     COMPLEX TERRAIN RECEPTOR INFORMATION

                      XRCT         YRCT        ZRCT          XHH
                      (km)         (km)         (m)
                     ------       -----      ------         ----
1
      Description of Complex Terrain Variables:
           XC, YC  = Coordinates of center of hill
           THETAH  = Orientation of major axis of hill (clockwise from
                     North)
           ZGRID   = Height of the  0  of the grid above mean sea
                     level
           RELIEF  = Height of the crest of the hill above the grid elevation
           EXPO 1  = Hill-shape exponent for the major axis
           EXPO 2  = Hill-shape exponent for the major axis
           SCALE 1 = Horizontal length scale along the major axis
           SCALE 2 = Horizontal length scale along the minor axis
           AMAX    = Maximum allowed axis length for the major axis
           BMAX    = Maximum allowed axis length for the major axis

           XRCT, YRCT = Coordinates of the complex terrain receptors
           ZRCT    = Height of the ground (MSL) at the complex terrain
                     Receptor
           XHH     = Hill number associated with each complex terrain receptor
                     (NOTE: MUST BE ENTERED AS A REAL NUMBER)

    **
      NOTE: DATA for each hill and CTSG receptor are treated as a separate
            input subgroup and therefore must end with an input group terminator.

 ------------------------------------------------------------------------------
INPUT GROUP: 7 -- Chemical parameters for dry deposition of gases
 --------------

       SPECIES     DIFFUSIVITY      ALPHA STAR      REACTIVITY    MESOPHYLL RESISTANCE
HENRY'S LAW COEFFICIENT
        NAME        (cm**2/s)                                          (s/cm)
(dimensionless)
       -------     -----------      ----------      ----------    --------------------
-----------------------
 !         HNO3 =     0.1628,             1,            18,                 0,
8E-8 !
 !          NOX =     0.1656,             1,             8,                 5,
3.5 !
 !          SO2 =     0.1509,          1000,             8,                 0,
0.04 !
```

```
 !END!

------------------------------------------------------------------------------

 INPUT GROUP: 8 -- Size parameters for dry deposition of particles
 --------------

      For SINGLE SPECIES, the mean and standard deviation are used to
      compute a deposition velocity for NINT (see group 9) size-ranges,
      and these are then averaged to obtain a mean deposition velocity.

      For GROUPED SPECIES, the size distribution should be explicitly
      specified (by the 'species' in the group), and the standard deviation
      for each should be entered as 0.  The model will then use the
      deposition velocity for the stated mean diameter.

       SPECIES      GEOMETRIC MASS MEAN        GEOMETRIC STANDARD
        NAME             DIAMETER                 DEVIATION
                         (microns)                (microns)
       -------      -------------------        ------------------
 !          NO3 =          0.48,                      2   !
 !        PM056 =        0.5625,                      0   !
 !        PM081 =        0.8125,                      0   !
 !        PM112 =         1.125,                      0   !
 !        PM187 =         1.875,                      0   !
 !        PM425 =          4.25,                      0   !
 !        PM800 =             8,                      0   !
 !          SO4 =          0.48,                      2   !

 !END!

------------------------------------------------------------------------------

 INPUT GROUP: 9 -- Miscellaneous dry deposition parameters
 --------------

      Reference cuticle resistance (s/cm)
      (RCUTR)                          Default: 30    ! RCUTR = 30 !
      Reference ground resistance  (s/cm)
      (RGR)                            Default: 10    ! RGR = 10 !
      Reference pollutant reactivity
      (REACTR)                         Default: 8     ! REACTR = 8 !

      Number of particle-size intervals used to
      evaluate effective particle deposition velocity
      (NINT)                           Default: 9     ! NINT = 9 !

      Vegetation state in unirrigated areas
      (IVEG)                           Default: 1     ! IVEG = 1 !
         IVEG=1 for active and unstressed vegetation
         IVEG=2 for active and stressed vegetation
         IVEG=3 for inactive vegetation

 !END!

------------------------------------------------------------------------------

INPUT GROUP: 10 -- Wet Deposition Parameters
 ---------------

                      Scavenging Coefficient -- Units: (sec)**(-1)
```

```
       Pollutant      Liquid Precip.       Frozen Precip.
       ---------      --------------       --------------
 !        HNO3 =        6.00E-05,             0.00E00 !
 !         NO3 =        1.00E-04,            3.00E-05 !
 !         NOX =         0.00E00,             0.00E00 !
 !        PM056 =        1.00E-04,            3.00E-05 !
 !        PM081 =        1.00E-04,            3.00E-05 !
 !        PM112 =        1.00E-04,            3.00E-05 !
 !        PM187 =        1.00E-04,            3.00E-05 !
 !        PM425 =        1.00E-04,            3.00E-05 !
 !        PM800 =        1.00E-04,            3.00E-05 !
 !          SO2 =        3.00E-05,             0.00E00 !
 !          SO4 =        1.00E-04,            3.00E-05 !

 !END!

-------------------------------------------------------------------------------

INPUT GROUP: 11 -- Chemistry Parameters
 ---------------

      Ozone data input option (MOZ)     Default: 1           ! MOZ = 1 !
      (Used only if MCHEM = 1, 3, or 4)
         0 = use a monthly background ozone value
         1 = read hourly ozone concentrations from
             the OZONE.DAT data file

      Monthly ozone concentrations
      (Used only if MCHEM = 1, 3, or 4 and
       MOZ = 0 or MOZ = 1 and all hourly O3 data missing)
      (BCKO3) in ppb                    Default: 12*80.
      ! BCKO3 = 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80 !

      Monthly ammonia concentrations
      (Used only if MCHEM = 1, or 3)
      (BCKNH3) in ppb                   Default: 12*10.
      ! BCKNH3 = 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1 !

      Nighttime SO2 loss rate (RNITE1)
      in percent/hour                   Default: 0.2         ! RNITE1 = 0.2 !

      Nighttime NOx loss rate (RNITE2)
      in percent/hour                   Default: 2.0         ! RNITE2 = 2 !

      Nighttime HNO3 formation rate (RNITE3)
      in percent/hour                   Default: 2.0         ! RNITE3 = 2 !

      H2O2 data input option (MH2O2)    Default: 1           ! MH2O2 = 1 !
      (Used only if MAQCHEM = 1)
         0 = use a monthly background H2O2 value
         1 = read hourly H2O2 concentrations from
             the H2O2.DAT data file

      Monthly H2O2 concentrations
      (Used only if MQACHEM = 1 and
       MH2O2 = 0 or MH2O2 = 1 and all hourly H2O2 data missing)
      (BCKH2O2) in ppb                  Default: 12*1.
      ! BCKH2O2 = 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00
!


  --- Data for SECONDARY ORGANIC AEROSOL (SOA) Option
      (used only if MCHEM = 4)
```

The SOA module uses monthly values of:
Fine particulate concentration in ug/m^3 (BCKPMF)
Organic fraction of fine particulate (OFRAC)
VOC / NOX ratio (after reaction) (VCNX)
to characterize the air mass when computing
the formation of SOA from VOC emissions.
Typical values for several distinct air mass types are:

Month	1 Jan	2 Feb	3 Mar	4 Apr	5 May	6 Jun	7 Jul	8 Aug	9 Sep	10 Oct	11 Nov	12 Dec
Clean Continental												
BCKPMF	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
OFRAC	.15	.15	.20	.20	.20	.20	.20	.20	.20	.20	.20	.15
VCNX	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.
Clean Marine (surface)												
BCKPMF	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
OFRAC	.25	.25	.30	.30	.30	.30	.30	.30	.30	.30	.30	.25
VCNX	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.
Urban - low biogenic (controls present)												
BCKPMF	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
OFRAC	.20	.20	.25	.25	.25	.25	.25	.25	.20	.20	.20	.20
VCNX	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
Urban - high biogenic (controls present)												
BCKPMF	60.	60.	60.	60.	60.	60.	60.	60.	60.	60.	60.	60.
OFRAC	.25	.25	.30	.30	.30	.55	.55	.55	.35	.35	.35	.25
VCNX	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.
Regional Plume												
BCKPMF	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.
OFRAC	.20	.20	.25	.35	.25	.40	.40	.40	.30	.30	.30	.20
VCNX	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.
Urban - no controls present												
BCKPMF	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.
OFRAC	.30	.30	.35	.35	.35	.55	.55	.55	.35	.35	.35	.30
VCNX	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.

Default: Clean Continental
! BCKPMF = 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00 !
! OFRAC = 0.15, 0.15, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.15 !
! VCNX = 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00,
50.00, 50.00 !

!END!

INPUT GROUP: 12 -- Misc. Dispersion and Computational Parameters

---

Horizontal size of puff (m) beyond which
time-dependent dispersion equations (Heffter)
are used to determine sigma-y and
sigma-z (SYTDEP) Default: 550. ! SYTDEP = 550 !

Switch for using Heffter equation for sigma z
as above (0 = Not use Heffter; 1 = use Heffter

```
(MHFTSZ)                                    Default: 0      ! MHFTSZ = 0 !

Stability class used to determine plume
growth rates for puffs above the boundary
layer (JSUP)                                Default: 5      ! JSUP = 5 !

Vertical dispersion constant for stable
conditions (k1 in Eqn. 2.7-3)  (CONK1)      Default: 0.01   ! CONK1 = 0.01 !

Vertical dispersion constant for neutral/
unstable conditions (k2 in Eqn. 2.7-4)
(CONK2)                                     Default: 0.1    ! CONK2 = 0.1 !

Factor for determining Transition-point from
Schulman-Scire to Huber-Snyder Building Downwash
scheme (SS used for Hs <Hb + TBD * HL)
(TBD)                                       Default: 0.5    ! TBD = 0.5 !
   TBD <0   ==> always use Huber-Snyder
   TBD = 1.5 ==> always use Schulman-Scire
   TBD = 0.5 ==> ISC Transition-point

Range of land use categories for which
urban dispersion is assumed
(IURB1, IURB2)                              Default: 10     ! IURB1 = 10 !
                                                     19     ! IURB2 = 19 !

Site characterization parameters for single-point Met data files ---------
(needed for METFM = 2,3,4,5)

   Land use category for modeling domain
   (ILANDUIN)                               Default: 20     ! ILANDUIN = 20 !

   Roughness length (m) for modeling domain
   (Z0IN)                                   Default: 0.25   ! Z0IN = .25 !

   Leaf area index for modeling domain
   (XLAIIN)                                 Default: 3.0    ! XLAIIN = 3.0 !

   Elevation above sea level (m)
   (ELEVIN)                                 Default: 0.0    ! ELEVIN = .0 !

   Latitude (degrees) for met location
   (XLATIN)                                 Default: -999.  ! XLATIN = -999.0 !

   Longitude (degrees) for met location
   (XLONIN)                                 Default: -999.  ! XLONIN = -999.0 !

Specialized information for interpreting single-point Met data files -----

   Anemometer height (m) (Used only if METFM = 2,3)
   (ANEMHT)                                 Default: 10.    ! ANEMHT = 10.0 !

   Form of lateral turbulance data in PROFILE.DAT file
   (Used only if METFM = 4,5 or MTURBVW = 1 or 3)
   (ISIGMAV)                                Default: 1      ! ISIGMAV = 1 !
       0 = read sigma-theta
       1 = read sigma-v

   Choice of mixing heights (Used only if METFM = 4)
   (IMIXCTDM)                               Default: 0      ! IMIXCTDM = 0 !
       0 = read PREDICTED mixing heights
       1 = read OBSERVED mixing heights
```

Maximum length of a slug (met. grid units)
(XMXLEN) Default: 1.0 ! XMXLEN = 1 !

Maximum travel distance of a puff/slug (in grid units) during one sampling step
(XSAMLEN) Default: 1.0 ! XSAMLEN = 1 !

Maximum Number of slugs/puffs release from one source during one time step
(MXNEW) Default: 99 ! MXNEW = 99 !

Maximum Number of sampling steps for one puff/slug during one time step
(MXSAM) Default: 99 ! MXSAM = 99 !

Number of iterations used when computing the transport wind for a sampling step that includes gradual rise (for CALMET and PROFILE winds)
(NCOUNT) Default: 2 ! NCOUNT = 2 !

Minimum sigma y for a new puff/slug (m)
(SYMIN) Default: 1.0 ! SYMIN = 1 !

Minimum sigma z for a new puff/slug (m)
(SZMIN) Default: 1.0 ! SZMIN = 1 !

Default minimum turbulence velocities sigma-v and sigma-w for each stability class over land and over water (m/s)
(SVMIN(12) and SWMIN(12))

	LAND						WATER					
Stab Class :	A	B	C	D	E	F	A	B	C	D	E	F
Default SVMIN :	.50,	.50,	.50,	.50,	.50,	.50,	.37,	.37,	.37,	.37,	.37,	.37
Default SWMIN :	.20,	.12,	.08,	.06,	.03,	.016,	.20,	.12,	.08,	.06,	.03,	.016

! SVMIN = 0.5, 0.5, 0.5, 0.5, 0.5, 0.5, 0.5, 0.5, 0.5, 0.5, 0.5, 0.5 !
! SWMIN = 0.2, 0.12, 0.08, 0.06, 0.03, 0.016, 0.2, 0.12, 0.08, 0.06, 0.03, 0.016 !

Divergence criterion for dw/dz across puff used to initiate adjustment for horizontal convergence (1/s)
Partial adjustment starts at CDIV(1), and full adjustment is reached at CDIV(2)
(CDIV(2)) Default: 0.0,0.0 ! CDIV = 0.01, 0.01 !

Minimum wind speed (m/s) allowed for non-calm conditions. Also used as minimum speed returned when using power-law extrapolation toward surface
(WSCALM) Default: 0.5 ! WSCALM = 0.5 !

Maximum mixing height (m)
(XMAXZI) Default: 3000. ! XMAXZI = 3000 !

Minimum mixing height (m)
(XMINZI) Default: 50. ! XMINZI = 50 !

Default wind speed classes --
5 upper bounds (m/s) are entered;
the 6th class has no upper limit

```
(WSCAT(5))                      Default   :
                                ISC RURAL : 1.54, 3.09, 5.14, 8.23, 10.8 (10.8+)

                         Wind Speed Class :  1     2     3     4     5
                                            ---   ---   ---   ---   ---
                                  ! WSCAT = 1.54, 3.09, 5.14, 8.23, 10.8 !

Default wind speed profile power-law
exponents for stabilities 1-6
(PLX0(6))                       Default   : ISC RURAL values
                                ISC RURAL : .07, .07, .10, .15, .35, .55
                                ISC URBAN : .15, .15, .20, .25, .30, .30

                          Stability Class :  A     B     C     D     E     F
                                            ---   ---   ---   ---   ---   ---
                                  ! PLX0 = 0.07, 0.07, 0.1, 0.15, 0.35, 0.55 !

Default potential temperature gradient
for stable classes E, F (degK/m)
(PTG0(2))                       Default: 0.020, 0.035
                                  ! PTG0 = 0.02, 0.035 !

Default plume path coefficients for
each stability class (used when option
for partial plume height terrain adjustment
is selected -- MCTADJ=3)
(PPC(6))                 Stability Class :  A     B     C     D     E     F
                            Default  PPC : .50,  .50,  .50,  .50,  .35,  .35
                                           ---   ---   ---   ---   ---   ---
                                 ! PPC = 0.5, 0.5, 0.5, 0.5, 0.35, 0.35 !

Slug-to-puff transition criterion factor
equal to sigma-y/length of slug
(SL2PF)                            Default: 10.        ! SL2PF = 10 !

Puff-splitting control variables -----------------------

  VERTICAL SPLIT
  --------------

  Number of puffs that result every time a puff
  is split - nsplit=2 means that 1 puff splits
  into 2
  (NSPLIT)                         Default:   3        ! NSPLIT = 3 !

  Time(s) of a day when split puffs are eligible to
  be split once again; this is typically set once
  per day, around sunset before nocturnal shear develops.
  24 values: 0 is midnight (00:00) and 23 is 11 PM (23:00)
  0=do not re-split    1=eligible for re-split
  (IRESPLIT(24))                   Default:  Hour 17 = 1
  ! IRESPLIT = 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1,0,0,0,0,0,0 !

  Split is allowed only if last hour's mixing
  height (m) exceeds a minimum value
  (ZISPLIT)                        Default: 100.       ! ZISPLIT = 100 !

  Split is allowed only if ratio of last hour's
  mixing ht to the maximum mixing ht experienced
  by the puff is less than a maximum value (this
  postpones a split until a nocturnal layer develops)
  (ROLDMAX)                        Default: 0.25       ! ROLDMAX = 0.25 !
```

```
        HORIZONTAL SPLIT
        ----------------

        Number of puffs that result every time a puff
        is split - nsplith=5 means that 1 puff splits
        into 5
        (NSPLITH)                       Default:   5        ! NSPLITH = 5 !

        Minimum sigma-y (Grid Cells Units) of puff
        before it may be split
        (SYSPLITH)                      Default:  1.0       ! SYSPLITH = 1 !

        Minimum puff elongation rate (SYSPLITH/hr) due to
        wind shear, before it may be split
        (SHSPLITH)                      Default:  2.        ! SHSPLITH = 2 !

        Minimum concentration (g/m^3) of each
        species in puff before it may be split
        Enter array of NSPEC values; if a single value is
        entered, it will be used for ALL species
        (CNSPLITH)                      Default:  1.0E-07   ! CNSPLITH = 1E-7 !

      Integration control variables ------------------------

        Fractional convergence criterion for numerical SLUG
        sampling integration
        (EPSSLUG)                       Default:   1.0e-04  ! EPSSLUG = 0.0001 !

        Fractional convergence criterion for numerical AREA
        source integration
        (EPSAREA)                       Default:   1.0e-06  ! EPSAREA = 1E-6 !

        Trajectory step-length (m) used for numerical rise
        integration
        (DSRISE)                        Default:   1.0      ! DSRISE = 1 !

        Boundary Condition (BC) Puff control variables -------------------------

        Minimum height (m) to which BC puffs are mixed as they are emitted
        (MBCON=2 ONLY).  Actual height is reset to the current mixing height
        at the release point if greater than this minimum.
        (HTMINBC)                       Default:   500.     * HTMINBC = *

        Search radius (km) about a receptor for sampling nearest BC puff.
        BC puffs are typically emitted with a spacing of one grid cell
        length, so the search radius should be greater than DGRIDKM.
        (RSAMPBC)                       Default:   10.      * RSAMPBC = *

        Near-Surface depletion adjustment to concentration profile used when
        sampling BC puffs?
        (MDEPBC)                        Default:   1        * MDEPBC = *
           0 = Concentration is NOT adjusted for depletion
           1 = Adjust Concentration for depletion

!END!

------------------------------------------------------------------------------

INPUT GROUPS: 13a, 13b, 13c, 13d -- Point source parameters
--------------------------------

---------------
```

Subgroup (13a)

Number of point sources with parameters provided below (NPT1) No default ! NPT1 = 1 !

Units used for point source emissions below (IPTU) Default: 1 ! IPTU = 1 !

1 = g/s
2 = kg/hr
3 = lb/hr
4 = tons/yr
5 = Odour Unit * m**3/s (vol. flux of odour compound)
6 = Odour Unit * m**3/min
7 = metric tons/yr

Number of source-species combinations with variable emissions scaling factors provided below in (13d) (NSPT1) Default: 0 ! NSPT1 = 0 !

Number of point sources with variable emission parameters provided in external file (NPT2) No default ! NPT2 = 0 !

(If NPT2 > 0, these point source emissions are read from the file: PTEMARB.DAT)

!END!

Subgroup (13b)

POINT SOURCE: CONSTANT DATA [a]

Source No.	X Coordinate (km)	Y Coordinate (km)	Stack Height (m)	Base Elevation (m)	Stack Diameter (m)	Exit Vel. (m/s)	Exit Temp. (deg. K)	Bldg. Dwash	Emission Rates [b] [c]
1 ! SRCNAM = INV2 !									
1 ! X = -396.199,	438.552,	60.96,	1018.2,	1.829,	24.38,	389.0,	0.0,	2.5,	1.03, 2.9,
0,	0,	0.15,	0.25,	0.18,	0.06,	0.33,	0.15 !		
1 ! ZPLTFM =	0.0 !								
1 ! FMFAC =	1.0 ! !END!								

---

[a] Data for each source are treated as a separate input subgroup and therefore must end with an input group terminator.

SRCNAM is a 12-character name for a source (No default)

X is an array holding the source data listed by the column headings (No default)

SIGYZI is an array holding the initial sigma-y and sigma-z (m)

(Default: 0.,0.)

ZPLTFM is the platform height (m) for sources influenced by an isolated structure that has a significant open area between the surface and the bulk of the structure, such as an offshore oil platform. The Base Elevation is that of the surface (ground or ocean), and the Stack Height is the release height above the Base (not above the platform). Building heights entered in Subgroup 13c must be those of the buildings on the platform, measured from the platform deck. ZPLTFM is used only with MBDW=1 (ISC downwash method) for sources with building downwash. (Default: 0.0)

FMFAC is a vertical momentum flux factor (0. or 1.0) used to represent the effect of rain-caps or other physical configurations that reduce momentum rise associated with the actual exit velocity. (Default: 1.0 -- full momentum used)

b

0. = No building downwash modeled
1. = Downwash modeled for buildings resting on the surface
2. = Downwash modeled for buildings raised above the surface (ZPLTFM > 0.)
NOTE: must be entered as a REAL number (i.e., with decimal point)

c

An emission rate must be entered for every pollutant modeled. Enter emission rate of zero for secondary pollutants that are modeled, but not emitted. Units are specified by IPTU (e.g. 1 for g/s).

Subgroup (13c)

BUILDING DIMENSION DATA FOR SOURCES SUBJECT TO DOWNWASH

Source No.	Effective building height, width, length and X/Y offset (in meters) every 10 degrees. LENGTH, XBADJ, and YBADJ are only needed for MBDW=2 (PRIME downwash option) [a]

---

a

Building height, width, length, and X/Y offset from the source are treated as a separate input subgroup for each source and therefore must end with an input group terminator. The X/Y offset is the position, relative to the stack, of the center of the upwind face of the projected building, with the x-axis pointing along the flow direction.

Subgroup (13d)

POINT SOURCE: VARIABLE EMISSIONS DATA [a]

Use this subgroup to describe temporal variations in the emission rates given in 13b. Factors entered multiply the rates in 13b. Skip sources here that have constant emissions. For more elaborate variation in source parameters, use PTEMARB.DAT and NPT2 > 0.

IVARY determines the type of variation, and is source-specific:
(IVARY) Default: 0

0 =	Constant	
1 =	Diurnal cycle	(24 scaling factors: hours 1-24)
2 =	Monthly cycle	(12 scaling factors: months 1-12)
3 =	Hour & Season	(4 groups of 24 hourly scaling factors, where first group is DEC-JAN-FEB)
4 =	Speed & Stab.	(6 groups of 6 scaling factors, where first group is Stability Class A, and the speed classes have upper bounds (m/s) defined in Group 12
5 =	Temperature	(12 scaling factors, where temperature classes have upper bounds (C) of: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 50+)

---

a
Data for each species are treated as a separate input subgroup and therefore must end with an input group terminator.

INPUT GROUPS: 14a, 14b, 14c, 14d -- Area source parameters NOT USED

Subgroup (14a)

NA

!END!

Subgroup (14b)

NA

Subgroup (14c)

NA

Subgroup (14d)

NA

INPUT GROUPS: 15a, 15b, 15c -- Line source parameters - NOT USED

Subgroup (15a)

NA

Subgroup (15b)

NA

Subgroup (15c)

NA

INPUT GROUPS: 16a, 16b, 16c -- Volume source parameters NOT USED

Subgroup (16a)

NA

Subgroup (16b)

NA

Subgroup (16c)

NA

INPUT GROUPS: 17a & 17b -- Non-gridded (discrete) receptor information
---

Subgroup (17a)

Number of non-gridded receptors (NREC) No default ! NREC = 289 !

!END!

Subgroup (17b)

NON-GRIDDED (DISCRETE) RECEPTOR DATA[a]

Receptor No.	X Coordinate (km)	Y Coordinate (km)	Ground Elevation (m)	Height Above Ground[b] (m)

```
    1 ! X =      -416.171,      380.781,      1280.0,          0.0 !   !END!
    2 ! X =      -415.541,      380.742,      1280.0,          0.0 !   !END!
     etc.
  288 ! X =      -327.801,      415.914,       853.0,          0.0 !   !END!
  289 ! X =      -326.547,      415.852,       860.0,          0.0 !   !END!

   ****  CONFIRMATION OF CONTROL DATA  ****


--------------  INPUT GROUP 1  ---------------

metrun  =  0
ibyr    =  2002
ibmo    =  1
ibdy    =  1
ibhr    =  1
irlg    =  8736
xbtz    =  7.00000000
nspec   =  11
nse     =  9
itest   =  2
metfm   =  1
mprffm  =  1
mrestart=  0
nrespd  =  500
avet    =  60.0000000
pgtime  =  60.0000000

--------------  INPUT GROUP 2  ---------------

mgauss =  1
mctadj =  3
mctsg  =  0
mslug  =  0
mtrans =  1
mchem  =  1
maqchem  =  0
mwet   =  1
mdry   =  1
mtilt  =  0
mdisp  =  3
mdisp2 =  3
mturbvw =  3
mtauly =  0.00000000E+00
mtauadv=  0
mcturb =  1
mrough =  0
mtip   =  1
mbdw   =  1
mshear =  0
msplit =  0
mpartl =  1
mtinv  =  0
mpdf   =  0
msgtibl=  0
mbcon  =  0
msource=  0
mfog   =  0
mreg   =  1
  Technical options must conform to USEPA
   Long Range Transport (LRT) guidance
        METFM    1 or 2
        AVET     60. (min)
```

```
         PGTIME   60. (min)
         MGAUSS   1
         MCTADJ   3
         MTRANS   1
         MTIP     1
         MCHEM    1 or 3 (if modeling SOx, NOx)
         MWET     1
         MDRY     1
         MDISP    2 or 3
         MPDF     0 if MDISP=3
                  1 if MDISP=2
         MROUGH   0
         MPARTL   1
         SYTDEP   550. (m)
         MHFTSZ   0
         SVMIN    0.5 (m/s)

 --------------  INPUT GROUP 3  ---------------

 SPECIES: SO2           j: 1  isplst(-,j) =   1  1  1  GROUP: SO2
 SPECIES: SO4           j: 2  isplst(-,j) =   1  1  2  GROUP: SO4
 SPECIES: NOX           j: 3  isplst(-,j) =   1  1  1  GROUP: NOX
 SPECIES: HNO3          j: 4  isplst(-,j) =   1  0  1  GROUP: HNO3
 SPECIES: NO3           j: 5  isplst(-,j) =   1  0  2  GROUP: NO3
 SPECIES: PM800         j: 6  isplst(-,j) =   1  1  2  GROUP: PM800
 SPECIES: PM425         j: 7  isplst(-,j) =   1  1  2  GROUP: PM425
 SPECIES: PM187         j: 8  isplst(-,j) =   1  1  2  GROUP: PM187
 SPECIES: PM112         j: 9  isplst(-,j) =   1  1  2  GROUP: PM112
 SPECIES: PM081         j:10  isplst(-,j) =   1  1  2  GROUP: PM081
 SPECIES: PM056         j:11  isplst(-,j) =   1  1  2  GROUP: PM056

 --------------  INPUT GROUP 4  ---------------

 pmap    = LCC
 datum   = NWS-84
 daten   = 02-21-2003
 feast   =  0.00000000E+00
 fnorth  =  0.00000000E+00
 rlat0   =  40.0000000
 rlon0   =  98.0000000
 xlat1   =  20.0000000
 xlat2   =  60.0000000
 nx      =  313
 ny      =  181
 nz      =  10
 zface  =  0.00000000E+00 20.0000000 40.0000000 80.0000000 160.000000 320.000000
640.000000 1200.00000 2000.00000 3000.00000 4000.00000
 dgridkm =  4.00000000
 xorigkm =  -506.000000
 yorigkm =  298.000000
 iutmzn  =  0
 ibcomp  =  1
 jbcomp  =  1
 iecomp  =  120
 jecomp  =  120
 lsamp   =  T
 ibsamp  =  1
 jbsamp  =  1
 iesamp  =  75
 jesamp  =  75
 meshdn  =  1

 --------------  INPUT GROUP 5  ---------------
```

```
 icon    =  1
 idry    =  1
 iwet    =  1
 ivis    =  1
 lcomprs =  T
 icprt   =  0
 idprt   =  0
 iwprt   =  0
 icfrq   =  1
 idfrq   =  1
 iwfrq   =  1
 iprtu   =  3
 imesg   =  2
 imflx   =  0
 imbal   =  0
 iqaplot =  1
 ldebug  =  F
 ipfdeb  =  1
 npfdeb  =  100
 nn1     =  1
 nn2     =  10

 GROUP: SO2           j:   1  ioutop(-,j) =  1 1 1 1 1 1 1
 GROUP: SO4           j:   2  ioutop(-,j) =  1 1 1 1 1 1 1
 GROUP: NOX           j:   3  ioutop(-,j) =  1 1 1 1 1 1 1
 GROUP: HNO3          j:   4  ioutop(-,j) =  1 1 1 1 1 1 1
 GROUP: NO3           j:   5  ioutop(-,j) =  1 1 1 1 1 1 1
 GROUP: PM800         j:   6  ioutop(-,j) =  1 1 1 1 1 1 0
 GROUP: PM425         j:   7  ioutop(-,j) =  1 1 1 1 1 1 0
 GROUP: PM187         j:   8  ioutop(-,j) =  1 1 1 1 1 1 0
 GROUP: PM112         j:   9  ioutop(-,j) =  1 1 1 1 1 1 0
 GROUP: PM081         j:  10  ioutop(-,j) =  1 1 1 1 1 1 0
 GROUP: PM056         j:  11  ioutop(-,j) =  1 1 1 1 1 1 0

 --------------  INPUT GROUP 6  ---------------

         ------  Subgroup (6a)  ------

 nhill  =  0
 nctrec =  0
 mhill  =  2
 xhill2m=  1.00000000
 zhill2m=  1.00000000
 xctdmkm=  0.00000000E+00
 yctdmkm=  0.00000000E+00

         ------  Subgroup (6b)  ------


         ------  Subgroup (6c)  ------


 --------------  INPUT GROUP 7  ---------------

 SPECIES: SO2           j:   1  dryg(-,j) =       0.15   1000.00      8.00      0.00
0.04
 SPECIES: SO4           j:   2  dryg(-,j) =    -999.00   -999.00   -999.00   -999.00   -
999.00
 SPECIES: NOX           j:   3  dryg(-,j) =       0.17      1.00      8.00      5.00
3.50
 SPECIES: HNO3          j:   4  dryg(-,j) =       0.16      1.00     18.00      0.00
0.00
```

```
 SPECIES: NO3           j:   5  dryg(-,j) =    -999.00   -999.00   -999.00   -999.00   -
999.00
 SPECIES: PM800         j:   6  dryg(-,j) =    -999.00   -999.00   -999.00   -999.00   -
999.00
 SPECIES: PM425         j:   7  dryg(-,j) =    -999.00   -999.00   -999.00   -999.00   -
999.00
 SPECIES: PM187         j:   8  dryg(-,j) =    -999.00   -999.00   -999.00   -999.00   -
999.00
 SPECIES: PM112         j:   9  dryg(-,j) =    -999.00   -999.00   -999.00   -999.00   -
999.00
 SPECIES: PM081         j:  10  dryg(-,j) =    -999.00   -999.00   -999.00   -999.00   -
999.00
 SPECIES: PM056         j:  11  dryg(-,j) =    -999.00   -999.00   -999.00   -999.00   -
999.00

 --------------  INPUT GROUP 8  ---------------

 SPECIES: SO2           j:   1  dryp(-,j) =    -999.00   -999.00
 SPECIES: SO4           j:   2  dryp(-,j) =       0.48      2.00
 SPECIES: NOX           j:   3  dryp(-,j) =    -999.00   -999.00
 SPECIES: HNO3          j:   4  dryp(-,j) =    -999.00   -999.00
 SPECIES: NO3           j:   5  dryp(-,j) =       0.48      2.00
 SPECIES: PM800         j:   6  dryp(-,j) =       8.00      0.00
 SPECIES: PM425         j:   7  dryp(-,j) =       4.25      0.00
 SPECIES: PM187         j:   8  dryp(-,j) =       1.88      0.00
 SPECIES: PM112         j:   9  dryp(-,j) =       1.12      0.00
 SPECIES: PM081         j:  10  dryp(-,j) =       0.81      0.00
 SPECIES: PM056         j:  11  dryp(-,j) =       0.56      0.00

 --------------  INPUT GROUP 9  ---------------

 rcutr   =  30.0000000
 rgr     =  10.0000000
 reactr  =  8.00000000
 pconst  =  2.30000001E-08
 bmin    =  1.00000001E-07
 bmax    =  2.49999994E-06
 qswmax  =  600.000000
 dconst1 =  2.00000000
 dconst2 =  0.666666687
 dconst3 =  4.79999988E-04
 dconst4 =  0.666666687
 nint    =  9
 iveg    =  1

 --------------  INPUT GROUP 10  ---------------

 SPECIES: SO2           j:   1  wa(-,j) =  3.000E-05   0.000E+00
 SPECIES: SO4           j:   2  wa(-,j) =  1.000E-04   3.000E-05
 SPECIES: NOX           j:   3  wa(-,j) =  0.000E+00   0.000E+00
 SPECIES: HNO3          j:   4  wa(-,j) =  6.000E-05   0.000E+00
 SPECIES: NO3           j:   5  wa(-,j) =  1.000E-04   3.000E-05
 SPECIES: PM800         j:   6  wa(-,j) =  1.000E-04   3.000E-05
 SPECIES: PM425         j:   7  wa(-,j) =  1.000E-04   3.000E-05
 SPECIES: PM187         j:   8  wa(-,j) =  1.000E-04   3.000E-05
 SPECIES: PM112         j:   9  wa(-,j) =  1.000E-04   3.000E-05
 SPECIES: PM081         j:  10  wa(-,j) =  1.000E-04   3.000E-05
 SPECIES: PM056         j:  11  wa(-,j) =  1.000E-04   3.000E-05

 --------------  INPUT GROUP 11  ---------------

 moz      =  1
 bcko3m   =  80.0000000 80.0000000 80.0000000 80.0000000
```

```
         =  80.0000000 80.0000000 80.0000000 80.0000000
         =  80.0000000 80.0000000 80.0000000 80.0000000
bcknh3m  =  1.00000000 1.00000000 1.00000000 1.00000000
         =  1.00000000 1.00000000 1.00000000 1.00000000
         =  1.00000000 1.00000000 1.00000000 1.00000000
rnite1   =  0.200000003
rnite2   =  2.00000000
rnite3   =  2.00000000
mh2o2    =  1
bckh2o2m =  1.00000000 1.00000000 1.00000000 1.00000000
         =  1.00000000 1.00000000 1.00000000 1.00000000
         =  1.00000000 1.00000000 1.00000000 1.00000000
bckpmf   =  1.00000000 1.00000000 1.00000000 1.00000000
         =  1.00000000 1.00000000 1.00000000 1.00000000
         =  1.00000000 1.00000000 1.00000000 1.00000000
ofrac    =  0.150000006 0.150000006 0.200000003 0.200000003
         =  0.200000003 0.200000003 0.200000003 0.200000003
         =  0.200000003 0.200000003 0.200000003 0.150000006
vcnx     =  50.0000000 50.0000000 50.0000000 50.0000000
         =  50.0000000 50.0000000 50.0000000 50.0000000
         =  50.0000000 50.0000000 50.0000000 50.0000000

--------------  INPUT GROUP 12  ---------------

sytdep   =  550.000000
mhftsz   =  0
jsup     =  5
conk1    =  9.99999978E-03
conk2    =  0.100000001
iurb1    =  10
iurb2    =  19

anemht   =  10.0000000
isigmav  =  1
imixctdm =  0
ilanduin =  20
z0in     =  0.250000000
xlaiin   =  3.00000000
elevin   =  0.00000000E+00
xlatin   =  -999.000000
xlonin   =  -999.000000

xmxlen   =  1.00000000
mxnew    =  99
xsamlen  =  1.00000000
mxsam    =  99
ncount   =  2
sl2pf    =  10.0000000
wscalm   =  0.499994993
cdiv     =  9.99999978E-03 9.99999978E-03

wscat    =  1.53999996   top for class 1
wscat    =  3.08999991   top for class 2
wscat    =  5.13999987   top for class 3
wscat    =  8.22999954   top for class 4
wscat    =  10.8000002   top for class 5

Over LAND
svmin    =  0.500000000  for stability 1
svmin    =  0.500000000  for stability 2
svmin    =  0.500000000  for stability 3
svmin    =  0.500000000  for stability 4
svmin    =  0.500000000  for stability 5
```

```
 svmin    =  0.500000000  for stability 6
 swmin    =  0.200000003  for stability 1
 swmin    =  0.119999997  for stability 2
 swmin    =  7.99999982E-02  for stability 3
 swmin    =  5.99999987E-02  for stability 4
 swmin    =  2.99999993E-02  for stability 5
 swmin    =  1.60000008E-02  for stability 6

 Over WATER
 svmin    =  0.500000000  for stability 1
 svmin    =  0.500000000  for stability 2
 svmin    =  0.500000000  for stability 3
 svmin    =  0.500000000  for stability 4
 svmin    =  0.500000000  for stability 5
 svmin    =  0.500000000  for stability 6
 swmin    =  0.200000003  for stability 1
 swmin    =  0.119999997  for stability 2
 swmin    =  7.99999982E-02  for stability 3
 swmin    =  5.99999987E-02  for stability 4
 swmin    =  2.99999993E-02  for stability 5
 swmin    =  1.60000008E-02  for stability 6

 symin    =  1.00000000
 szmin    =  1.00000000
 xminzi   =  50.0000000
 xmaxzi   =  3000.00000

 plx0     =  7.00000003E-02  for stability 1
 plx0     =  7.00000003E-02  for stability 2
 plx0     =  0.100000001  for stability 3
 plx0     =  0.150000006  for stability 4
 plx0     =  0.349999994  for stability 5
 plx0     =  0.550000012  for stability 6

 ptg0     =  1.99999996E-02  for stability 5
 ptg0     =  3.50000001E-02  for stability 6

 ppc      =  0.500000000  for stability 1
 ppc      =  0.500000000  for stability 2
 ppc      =  0.500000000  for stability 3
 ppc      =  0.500000000  for stability 4
 ppc      =  0.349999994  for stability 5
 ppc      =  0.349999994  for stability 6
 tbd      =  0.500000000
 tibldist =  1.00000000 10.0000000 9.00000000
 nsplit   =  3
 iresplit =  0 0 0 0
          =  0 0 0 0
          =  0 0 0 0
          =  0 0 0 0
          =  0 1 0 0
          =  0 0 0 0
 zisplit  =  100.000000
 roldmax  =  0.250000000
 nsplith  =  5
 sysplith =  4000.00000
 shsplith =  2.22222233
 cnsplith =  9.99999994E-09 9.99999994E-09 9.99999994E-09 9.99999994E-09 9.99999994E-09
9.99999994E-09 9.99999994E-09 9.99999994E-09 9.99999994E-09 9.99999994E-09 9.99999994E-09
 epsslug  =  9.99999975E-05
 epsarea  =  1.00000001E-07
 dsrise   =  1.00000000
 trajincl =  20.0000000
```

```
 mdepbc   =  1
 htminbc  =  500.000000
 rsampbc  =  10.0000000

 --------------  INPUT GROUP 13  ---------------

 npt1     =  1
 iptu     =  1   units =     g/s
       converted to g/s by factor:  1.00000000
 nspt1    =  0
 npt2     =  0

 cnampt1  = INV2
 xpt1grd  =  27.4502487
 ypt1grd  =  35.1380005
 htstak   =  60.9599991
 elstak   =  1018.20001
 diam     =  1.82900000
 exitw    =  24.3799992
 tstak    =  389.000000
 idownw   =  0
 syipt1   =  0.00000000E+00
 szipt1   =  0.00000000E+00
 fmfpt1   =  1.00000000
 zplatpt1 =  0.00000000E+00

 pt. source: INV2              number:  1
 qstak    =  2.50000000 1.02999997 2.90000010 0.00000000E+00 0.00000000E+00 0.150000006
0.250000000 0.180000007 5.99999987E-02 0.330000013 0.150000006

 --------------  INPUT GROUP 14  ---------------

 nar1     =  0
 iaru     =  1   units =     g/s/m^2
    converted to g/s/m^2 by factor:  1.00000000
 nsar1    =  0
 nar2     =  0


 --------------  INPUT GROUP 15  ---------------

 nln2     =  0
 nlines   =  0
 ilnu     =  1   units =     g/s
       converted to g/s by factor:  1.00000000
 nsln1    =  0
 xl       =  0.00000000E+00
 hbl      =  0.00000000E+00
 wbl      =  0.00000000E+00
 wml      =  0.00000000E+00
 dxl      =  0.00000000E+00
 fprimel  =  0.00000000E+00
 mxnseg     =  7
 nlrise   =  6


 --------------  INPUT GROUP 16  ---------------

 nvl1     =  0
 ivlu     =  1   units =     g/s
       converted to g/s by factor:  1.00000000
 nsvl1    =  0
 nvl2     =  0
```

```
 --------------  INPUT GROUP 17  ---------------

 nrec     =  289
 xng      =  22.4572525 22.6147537 22.7722473 22.1559982 22.3134995 22.4710007 22.6285019
22.7860031 22.9434967
etc
 yng      =  20.6952515 20.6855011 20.6754990 20.9325027 20.9225006 20.9127502 20.9027481
20.8927536 20.8830032
etc
 zng      =  0.00000000E+00 0.00000000E+00 0.00000000E+00 0.00000000E+00 0.00000000E+00
0.00000000E+00 0.00000000E+00
etc
 elevng   =  1280.00000 1280.00000 1271.00000 1280.00000 1280.00000 1280.00000 1280.00000
1219.00000 1219.00000


 ------------------------------------------------------------------------------------------
----------------------------------------
          INPUT FILES

 Default Name     Unit No.     File Name and Path
 ------------     --------     ------------------
  CALPUFF.INP         1        CALPUFF.INP
   CALMET.DAT         7        G:\BIGSTO~1\OCT200~1\02\ME209D~1.DAT
     (----)           7        G:\BIGSTO~1\OCT200~1\02\ME249D~1.DAT
     (----)           7        G:\BIGSTO~1\OCT200~1\02\ME289D~1.DAT
     (----)           7        G:\BIGSTO~1\OCT200~1\02\ME2C9D~1.DAT
     (----)           7        G:\BIGSTO~1\OCT200~1\02\ME20AD~1.DAT
     (----)           7        G:\BIGSTO~1\OCT200~1\02\ME24AD~1.DAT
     (----)           7        G:\BIGSTO~1\OCT200~1\02\ME28AD~1.DAT
     (----)           7        G:\BIGSTO~1\OCT200~1\02\MET200~1.DAT
     (----)           7        G:\BIGSTO~1\OCT200~1\02\MET200~2.DAT
     (----)           7        G:\BIGSTO~1\OCT200~1\02\MET200~3.DAT
     (----)           7        G:\BIGSTO~1\OCT200~1\02\MET200~4.DAT
     (----)           7        G:\BIGSTO~1\OCT200~1\02\ME2497~1.DAT
    OZONE.DAT        22        E:\RCVIS\GCC\RUNINP~1\OZONE\OZONE2~1.DAT


 ------------------------------------------------------------------------------------------
----------------------------------------
          OUTPUT FILES

 Default Name     Unit No.     File Name and Path
 ------------     --------     ------------------
  CALPUFF.LST         2        02_ES1_CALPUFF.LST
     CONC.DAT         8        CONC.DAT
     DFLX.DAT         9        DFLX.DAT
     WFLX.DAT        10        WFLX.DAT
     VISB.DAT        11        VISB.DAT


  LAST DAY/HOUR PROCESSED:
     Year: 2002  Month: 12   Day: 31   Julian day: 365   Hour:  0


  End of run -- Clock time: 14:59:27
                       Date: 12-29-2010

        Elapsed Clock Time:     8315.0 (seconds)

                   CPU Time:     8315.0 (seconds)
```

Appendix H-2 – POSTUTIL Control File

```
************************************************************************
************************************************************
                                                POSTUTIL Version 1.58
Level 080407
************************************************************************
************************************************************



  Run Title:
     Generated by CALPUFF View - Version 4.0.0 - 12/29/2010




 -------------
 Note:  provide NMET lines of the form    * UTLMET = name * *END*
                                     or   * MET1D  = name * *END*
                                     or   * M2DRHU = name * *END*
                                   (and)  * M2DTMP = name * *END*
                                   (and)  * M2DRHO = name * *END*

        and NFILES lines of the form      * MODDAT = name * *END*
        where the * should be replaced with an exclamation point,
        the special delimiter character.


 ------------------------------------------------------------------------
----------

 INPUT GROUP: 1 -- General run control parameters
 --------------

      Starting date:    Year  (ISYR) --    No default   ! ISYR = 2002 !
                        Month (ISMO) --    No default   ! ISMO = 1 !
                        Day   (ISDY) --    No default   ! ISDY = 1 !
                        Hour  (ISHR) --    No default   ! ISHR = 2 !

      Number of periods to process
                                  (NPER) -- No default   ! NPER = 8734 !

      Number of species to process from CALPUFF runs
                               (NSPECINP) -- No default   ! NSPECINP = 11
!

      Number of species to write to output file
                               (NSPECOUT) -- No default   ! NSPECOUT = 15
!

      Number of species to compute from those modeled
      (must be no greater than NSPECOUT)
                               (NSPECCMP) -- No default   ! NSPECCMP = 4
!
```

When multiple files are used, a species name may appear in more than one file. Data for this species will be summed (appropriate if the CALPUFF runs use different source groups). If this summing is not appropriate, remove duplicate species from the file(s).

```
    Stop run if duplicate species names
    are found? (MDUPLCT)            Default: 0       ! MDUPLCT = 0 !
       0 = no  (i.e., duplicate species are summed)
       1 = yes (i.e., run is halted)
```

Data for each species in a CALPUFF data file may also be scaled as they are read. This can be done to alter the emission rate of all sources that were modeled in a particular CALPUFF application. The scaling factor for each species is entered in Subgroup (2d), for each file for which scaling is requested.

```
    Number of CALPUFF data files that will be scaled
    (must be no greater than NFILES)
    (NSCALED)                       Default: 0       ! NSCALED = 0 !
```

Ammonia-Limiting Method Option to recompute the HNO3/NO3 concentration partition prior to performing other actions is controlled by MNITRATE.

This option will NOT alter any deposition fluxes contained in the CALPUFF file(s). Three partition selections are provided. The first two are typically used in sequence (POSTUTIL is run more than once). The first selection (MNITRATE=1) computes the partition for the TOTAL (all sources) concentration fields (SO4, NO3, HNO3; NH3), and the second (MNITRATE=2) uses this partition (from the previous application of POSTUTIL) to compute the partition for individual source groups. The third selection (MNITRATE=3) can be used instead in a single POSTUTIL application if a file of background concentrations is provided (BCKGALM in Input Group 0).

Required information for MNITRATE=1 includes:

- species NO3, HNO3, and SO4
- NH3 concentration(s)
- met. data file for RH and T

Required information for MNITRATE=2 includes:

- species NO3 and HNO3 for a source group
- species NO3ALL and HNO3ALL for all source groups, properly partitioned

Required information for MNITRATE=3 includes:

- species NO3, HNO3, and SO4 for a source group
- species NO3, HNO3, SO4 and TNH3 from the background BCKGALM file

```
            If TNH3 is not in the background BCKGALM file, monthly TNH3
            concentrations are used (BCKTNH3)
            TNH3= total NH3 = NH3gaseous+NH3particulate

        Recompute the HNO3/NO3 partition for concentrations?
        (MNITRATE)                    Default: 0       ! MNITRATE = 0 !
           0 = no
           1 = yes, for all sources combined
           2 = yes, for a source group
           3 = yes, ALM application in one step

  SOURCE OF AMMONIA:

  Ammonia may be available as a modeled species in the CALPUFF files,
  and it may or may not be appropriate to use it for repartitioning
NO3/HNO3
  (in option MNITRATE=1 or MNITRATE=3).  Its use is contolled by
NH3TYP.
  When NH3 is listed as a processed species in Subgroup (2a), as one of
  the NSPECINP ASPECI entries, and the right option is chosen for
NH3TYP,
  the NH3 modeled values from the CALPUFF concentration files will be
used
  in the chemical equilibrium calculation.

  NH3TYP also controls when monthly background ammonia values are used.
Both
  gaseous (NH3) and total (TNH3=NH3gaseous+NH3particulate) ammonia can
be provided
  monthly as BCKNH3/BCKTNH3.

        What is the input source of Ammonia?
        (NH3TYP)                      No Default       * NH3TYP = *
           0 = No background will be used.
               ONLY NH3 or TNH3 from the concentration
               files listed in Subgroup (2a&2b) as
               a processed species will be used.
               (Cannot be used with MNITRATE=3)

           1 = NH3 Monthly averaged background (BCKNH3)
               listed below will be added to NH3 from
               concentration files listed in Subgroup (2a)

           2 = NH3 from background concentration file BCKGALM
               will be added to NH3 from concentration files
               listed in Subgroup (2a&2b)
               (ONLY possible for MNITRATE=3)

           3 = NH3 Monthly averaged background (BCKNH3)
               listed below will be used alone.

           4 = NH3 from background concentration file BCKGALM
               will be used alone
               (ONLY possible for MNITRATE=3)

  | OPTION | NH3 or TNH3 CONC | BCKNH3 or BCKTNH3 | TNH3/BCKGALM or
BCKTNH3 |
```

```
  |--------|------------------|--------------------|--------------------
-----|
  |    0   |        X         |        0           |              0
|
  |--------|------------------|--------------------|--------------------
-----|
  |    1   |        X         |        X           |              0
|
  |--------|------------------|--------------------|--------------------
-----|
  |    2   |        X         |        0           |              X
|
  |--------|------------------|--------------------|--------------------
-----|
  |    3   |        0         |        X           |              0
|
  |--------|------------------|--------------------|--------------------
-----|
  |    4   |        0         |        0           |              X
|
  |--------|------------------|--------------------|--------------------
-----|

      Default monthly (12 values) background ammonia concentration
(ppb)
      used for HNO3/NO3 partition (need to choose one or the other):

       Gaseous NH3 (BCKNH3)            Default: -999
       ! BCKNH3 = 12*10 !

       Total TNH3  (BCKTNH3)           Default: -999
       ! BCKTNH3 = 12*10 !

      If a single value is entered, this is used for all 12 months.
      Month 1 is JANUARY, Month 12 is DECEMBER.

 !END!

 ------------------------------------------------
 NOTICE: Starting year in control file sets the
         expected century for the simulation.  All
         YY years are converted to YYYY years in
         the range:  1952 2051
 ------------------------------------------------

 ------------------------------------------------------------------------
---------

 INPUT GROUP: 2 -- Species Processing Information
 --------------

 -------------
 Subgroup (2a)
 -------------

   The following NSPECINP species will be processed:
```

```
! ASPECI =          SO4 !         !END!
! ASPECI =          HNO3 !         !END!
! ASPECI =          NO3 !         !END!
! ASPECI =          PM425 !         !END!
! ASPECI =          SO2 !         !END!
! ASPECI =          NOX !         !END!
! ASPECI =          PM800 !         !END!
! ASPECI =          PM187 !         !END!
! ASPECI =          PM081 !         !END!
! ASPECI =          PM056 !         !END!
! ASPECI =          PM112 !         !END!


-------------
Subgroup (2b)
-------------

  The following NSPECOUT species will be written:

! ASPECO =          SO4 !         !END!
! ASPECO =          HNO3 !         !END!
! ASPECO =          NO3 !         !END!
! ASPECO =          PM425 !         !END!
! ASPECO =          SO2 !         !END!
! ASPECO =          NOX !         !END!
! ASPECO =          PM800 !         !END!
! ASPECO =          PM187 !         !END!
! ASPECO =          PM081 !         !END!
! ASPECO =          PM056 !         !END!
! ASPECO =          PM112 !         !END!
! ASPECO =          SOIL !         !END!
! ASPECO =          SOA !         !END!
! ASPECO =          EC !         !END!
! ASPECO =          PMC !         !END!


-------------
Subgroup (2c)
-------------

  The following NSPECCMP species will be computed by scaling and
summing
  one or more of the processed input species.  Identify the name(s) of
  the computed species and provide the scaling factors for each of the
  NSPECINP input species (NSPECCMP groups of NSPECINP+1 lines each):

! CSPECCMP=SOIL !
!     PM425 = 0 !
!     PM800 = 0 !
!     PM187 = 1 !
!     PM081 = 0.61 !
!     PM056 = 0 !
!     PM112 = 1 !
!END!
! CSPECCMP=SOA !
!     PM425 = 0 !
!     PM800 = 0 !
```

```
 !     PM187 = 0 !
 !     PM081 = 0.39 !
 !     PM056 = 0.87 !
 !     PM112 = 0 !
 !END!
 ! CSPECCMP=EC !
 !     PM425 = 0 !
 !     PM800 = 0 !
 !     PM187 = 0 !
 !     PM081 = 0 !
 !     PM056 = 0.13 !
 !     PM112 = 0 !
 !END!
 ! CSPECCMP=PMC !
 !     PM425 = 1 !
 !     PM800 = 1 !
 !     PM187 = 0 !
 !     PM081 = 0 !
 !     PM056 = 0 !
 !     PM112 = 0 !
 !END!

***********************************************************************
***********************************************************
                                              POSTUTIL Version 1.58
Level 080407
***********************************************************************
***********************************************************



  POSTUTIL Control File Input Summary -----------------------

                       Run starting date -- year: 2002
                                           month:    1
                                             day:    1
                                      Julian day:    1
                   time beginning  -  hour(0-23):    1
                                   -      second:    0
                            Run length (periods): 8734


 Note: the length of a period is controlled by
       the averaging time selected in the model

 Partition between HNO3 and NO3 is NOT computed
 and 1-step Ammonia Limiting Method is not used

       Species needed from input file --
                              SO4
                              HNO3
                              NO3
                              PM425
                              SO2
                              NOX
                              PM800
```

```
                              PM187
                              PM081
                              PM056
                              PM112

     Species written to output file --
                              SO4
                              HNO3
                              NO3
                              PM425
                              SO2
                              NOX
                              PM800
                              PM187
                              PM081
                              PM056
                              PM112
                              SOIL
                              SOA
                              EC
                              PMC

Species computed from input species --

                              SOIL         =
                              0.000000E+00 * SO4
                              0.000000E+00 * HNO3
                              0.000000E+00 * NO3
                              0.000000E+00 * PM425
                              0.000000E+00 * SO2
                              0.000000E+00 * NOX
                              0.000000E+00 * PM800
                              1.000000E+00 * PM187
                              6.100000E-01 * PM081
                              0.000000E+00 * PM056
                              1.000000E+00 * PM112

                              SOA          =
                              0.000000E+00 * SO4
                              0.000000E+00 * HNO3
                              0.000000E+00 * NO3
                              0.000000E+00 * PM425
                              0.000000E+00 * SO2
                              0.000000E+00 * NOX
                              0.000000E+00 * PM800
                              0.000000E+00 * PM187
                              3.900000E-01 * PM081
                              8.700000E-01 * PM056
                              0.000000E+00 * PM112

                              EC           =
                              0.000000E+00 * SO4
                              0.000000E+00 * HNO3
                              0.000000E+00 * NO3
                              0.000000E+00 * PM425
                              0.000000E+00 * SO2
                              0.000000E+00 * NOX
```

```
                                0.000000E+00 * PM800
                                0.000000E+00 * PM187
                                0.000000E+00 * PM081
                                1.300000E-01 * PM056
                                0.000000E+00 * PM112

                                PMC          =
                                0.000000E+00 * SO4
                                0.000000E+00 * HNO3
                                0.000000E+00 * NO3
                                1.000000E+00 * PM425
                                0.000000E+00 * SO2
                                0.000000E+00 * NOX
                                1.000000E+00 * PM800
                                0.000000E+00 * PM187
                                0.000000E+00 * PM081
                                0.000000E+00 * PM056
                                0.000000E+00 * PM112



PROCESSED MODEL FILE ---------- Number  1

CALPUFF     5.8         070623

Based on Aug 2010 runs but , MSAM=99, sl2p5=10
Calmet.dat files from BS oct2009 submittal
Calpuff v5.8, Calpost v 6, postutil speciate

Averaging time for values reported from model:
      1    HOUR

Number of averaging periods in file from model:
      8736

Chemical species names for each layer in model:
SO2           1
SO4           1
NOX           1
HNO3          1
NO3           1
PM800         1
PM425         1
PM187         1
PM112         1
PM081         1
PM056         1

 msyr,mjsday      = 2002 1
 mshr,mssec       = 0 0
 nsecdt (period)  = 3600
 mnper,nszout,mavgpd = 8736 11 1
 xorigkm,yorigkm,nstas =  -506.000031 298.000000 204
 ielmet,jelmet = 313 181
 delx,dely,nz = 4.00000000 4.00000000 1
 iastar,iastop,jastar,jastop = 1 120 1 120
 isastr,isastp,jsastr,jsastp = 1 75 1 75
```

```
 (computed) ngx,ngy  = 75 75
 meshdn,npts,nareas  = 1 1 0
 nlines,nvols        = 0 0
 ndrec,nctrec,LSGRID = 289 0 T

Source names stored (all files):
type: pt1 -  INV2




Chemical species names written to new file:
SO4           1
HNO3          1
NO3           1
PM425         1
SO2           1
NOX           1
PM800         1
PM187         1
PM081         1
PM056         1
PM112         1
SOIL          1
SOA           1
EC            1
PMC           1



 ------------------------------------------------------------------------
----------------------------------------------------------
          INPUT FILES

 Default Name     Unit No.     File Name and Path
 ------------     --------     ------------------
 POSTUTIL.INP         5        POSTUTPM.INP
  CALPUFF.DAT        10        CONC.DAT


 ------------------------------------------------------------------------
----------------------------------------------------------
          OUTPUT FILES

 Default Name     Unit No.     File Name and Path
 ------------     --------     ------------------
 POSTUTIL.LST         7        POSTUTPM.LST
    MODEL.DAT         8        CONCPM.DAT

 Skipping periods in data files
  Start Time  2002 1 1 0
  Data File  ---  Skipped Periods
       1            1


 Skipping periods in background pollutant files
```

```
  Start Time  2002 1 1 0
  Data File  ---  Skipped Periods
       2            0

************************************************************
        RUN MESSAGES EXTRACTED FROM THE DOS WINDOW
************************************************************
Processing  8734  periods

  Finished  8734  of  8734  periods
```

Appendix H-3 – CALPOST Control File

```
**********************************************************************
**********************************************************
                                                CALPOST  Version 6.221
Level 080724
**********************************************************************
**********************************************************



 Internal Coordinate Transformations by  ---  COORDLIB   Version: 1.99
Level: 070921



  Run Title:
     Generated by CALPUFF View - Version 4.0.0 - 12/29/2010
     Visibility Run for VISIB


 ----------------------------------------------------------------------
----------

 INPUT GROUP: 1 -- General run control parameters
 --------------

      Option to run all periods found
      in the met. file(s)  (METRUN)        Default: 0   ! METRUN = 0 !

          METRUN = 0 - Run period explicitly defined below
          METRUN = 1 - Run all periods in CALPUFF data file(s)

      Starting date:    Year   (ISYR)  --    No default   ! ISYR = 2006
!
                        Month  (ISMO)  --    No default   ! ISMO = 1 !
                        Day    (ISDY)  --    No default   ! ISDY = 1 !
      Starting time:    Hour   (ISHR)  --    No default   ! ISHR = 1 !
                        Minute (ISMIN) --    No default   ! ISMIN = 0 !
                        Second (ISSEC) --    No default   ! ISSEC = 0 !

      Ending date:      Year   (IEYR)  --    No default   ! IEYR = 2006
!
                        Month  (IEMO)  --    No default   ! IEMO = 12 !
                        Day    (IEDY)  --    No default   ! IEDY = 30 !
      Ending time:      Hour   (IEHR)  --    No default   ! IEHR = 5 !
                        Minute (IEMIN) --    No default   ! IEMIN = 0 !
                        Second (IESEC) --    No default   ! IESEC = 0 !

      (These are only used if METRUN = 0)

      All times are in the base time zone of the CALPUFF simulation.
      CALPUFF Dataset Version 2.1 contains the zone, but earlier
versions
      do not, and the zone must be specified here.  The zone is the
      number of hours that must be ADDED to the time to obtain UTC (or
GMT).
      Identify the Base Time Zone for the CALPUFF simulation
```

```
                              (BTZONE) -- No default   ! BTZONE = 7 !

      Process every period of data?
                                (NREP) -- Default: 1   ! NREP = 1 !
       (1 = every period processed,
        2 = every 2nd period processed,
        5 = every 5th period processed, etc.)

 Species & Concentration/Deposition Information
 ----------------------------------------------

       Species to process (ASPEC)       -- No default   ! ASPEC = VISIB
!
       (ASPEC = VISIB for visibility processing)

       Layer/deposition code (ILAYER)   -- Default: 1   ! ILAYER = 1 !
         '1'  for CALPUFF concentrations,
         '-1' for dry deposition fluxes,
         '-2' for wet deposition fluxes,
         '-3' for wet+dry deposition fluxes.

       Scaling factors of the form:     -- Defaults:    ! A = 0.0 !
             X(new) = X(old) * A + B         A = 0.0    ! B = 0.0 !
         (NOT applied if A = B = 0.0)        B = 0.0

       Add Hourly Background Concentrations/Fluxes?
                              (LBACK)  -- Default: F   ! LBACK = F !


       Source of NO2 when ASPEC=NO2 (above) or LVNO2=T (Group 2) may be
       from CALPUFF NO2 concentrations OR from a fraction of CALPUFF
NOx
       concentrations.  Specify the fraction of NOx that is treated as
NO2
       either as a constant or as a table of fractions that depend on
the
       magnitude of the NOx concentration:
                             (NO2CALC) -- Default: 1   ! NO2CALC = 1 !
          0 =  Use NO2 directly (NO2 must be in file)
          1 =  Specify a single NO2/NOx ratio (RNO2NOX)
          2 =  Specify a table NO2/NOx ratios (TNO2NOX)
               (NOTE: Scaling Factors must NOT be used with NO2CALC=2)

       Single NO2/NOx ratio (0.0 to 1.0) for treating some
       or all NOx as NO2, where [NO2] = [NOX] * RNO2NOX
       (used only if NO2CALC = 1)
                             (RNO2NOX) -- Default: 1.0 ! RNO2NOX = 1 !

       Table of NO2/NOx ratios that vary with NOx concentration.
       Provide 14 NOx concentrations (ug/m**3) and the corresponding
       NO2/NOx ratio, with NOx increasing in magnitude.  The ratio used
       for a particular NOx concentration is interpolated from the
values
       provided in the table.  The ratio for the smallest tabulated NOx
       concentration (the first) is used for all NOx concentrations
less
       than the smallest tabulated value, and the ratio for the largest
```

```
      tabulated NOx concentration (the last) is used for all NOx
      concentrations greater than the largest tabulated value.
      (used only if NO2CALC = 2)

       NOx concentration(ug / m3)
                            (CNOX)    -- No default
         ! CNOX = 1,2,3,4,5,6,7,8,9,10,11,12,13,14 !

       NO2/NOx ratio for each NOx concentration:
                            (TNO2NOX) -- No default
         ! TNO2NOX = 1,1,1,1,1,1,1,1,1,1,1,1,1,1 !


 Source information
 ------------------

   Option to process source contributions:
          0 =  Process only total reported contributions
          1 =  Sum all individual source contributions and process
          2 =  Run in TRACEBACK mode to identify source
               contributions at a SINGLE receptor
                            (MSOURCE) -- Default: 0   ! MSOURCE = 0 !


 Plume Model Output Processing Options
 -------------------------------------

   Output from models other than CALPUFF and CALGRID can be written in
   the CONC.DAT format and processed by CALPOST.  Plume models such as
   AERMOD typically do not treat CALM hours, and do not include such
hours
   in multiple-hour averages, with specific rules about how many calm
hours
   can be removed from an average.  This treatment is known as CALM
   PROCESSING.  Calm periods are identified from wind speeds in the
   meteorological data file for the application, which must be
identified
   in Input Group 0 as the single-point meteorological data file
MET1DAT.
          0 =  Option is not used for CALPUFF/CALGRID output files
          1 =  Apply CALM processing procedures to multiple-hour
averages
                           (MCALMPRO) -- Default: 0   ! MCALMPRO = 0 !

   Format of Single-point Met File
          1 =  AERMOD/AERMET SURFACE file
                            (MET1FMT) -- Default: 1   ! MET1FMT = 1 !


 Receptor information
 --------------------

   Gridded receptors processed?    (LG) -- Default: F   ! LG = F !
   Discrete receptors processed?   (LD) -- Default: F   ! LD = T !
   CTSG Complex terrain receptors processed?
                                  (LCT) -- Default: F   ! LCT = F !
```

```
 --Report results by DISCRETE receptor RING?
   (only used when LD = T)     (LDRING) -- Default: F   ! LDRING = F !

 --Select range of DISCRETE receptors (only used when LD = T):

   Select ALL DISCRETE receptors by setting NDRECP flag to -1;
                                OR
   Select SPECIFIC DISCRETE receptors by entering a flag (0,1) for each
      0 = discrete receptor not processed
      1 = discrete receptor processed
   using repeated value notation to select blocks of receptors:
      23*1, 15*0, 12*1
   Flag for all receptors after the last one assigned is set to 0
   (NDRECP) -- Default: -1
                                              ! NDRECP = 189*1 !


 --Select range of GRIDDED receptors (only used when LG = T):

        X index of LL corner (IBGRID) -- Default: -1     ! IBGRID = -1
!
            (-1 OR 1 <= IBGRID <= NX)

        Y index of LL corner (JBGRID) -- Default: -1     ! JBGRID = -1
!
            (-1 OR 1 <= JBGRID <= NY)

        X index of UR corner (IEGRID) -- Default: -1     ! IEGRID = -1
!
            (-1 OR 1 <= IEGRID <= NX)

        Y index of UR corner (JEGRID) -- Default: -1     ! JEGRID = -1
!
            (-1 OR 1 <= JEGRID <= NY)

   Note: Entire grid is processed if IBGRID=JBGRID=IEGRID=JEGRID=-1


 --Specific gridded receptors can also be excluded from CALPOST
   processing by filling a processing grid array with 0s and 1s.  If
the
   processing flag for receptor index (i,j) is 1 (ON), that receptor
   will be processed if it lies within the range delineated by IBGRID,
   JBGRID,IEGRID,JEGRID and if LG=T. If it is 0 (OFF), it will not be
   processed in the run.  By default, all array values are set to 1
(ON).

   Number of gridded receptor rows provided in Subgroup (1a) to
   identify specific gridded receptors to process
                            (NGONOFF) -- Default: 0      ! NGONOFF = 0
!

 !END!


 --------------
 Subgroup (1a) -- Specific gridded receptors included/excluded
```

```
 --------------

     Specific gridded receptors are excluded from CALPOST processing
     by filling a processing grid array with 0s and 1s.  A total of
     NGONOFF lines are read here.  Each line corresponds to one 'row'
     in the sampling grid, starting with the NORTHERNMOST row that
     contains receptors that you wish to exclude, and finishing with
     row 1 to the SOUTH (no intervening rows may be skipped).  Within
     a row, each receptor position is assigned either a 0 or 1,
     starting with the westernmost receptor.
        0 = gridded receptor not processed
        1 = gridded receptor processed

     Repeated value notation may be used to select blocks of receptors:
        23*1, 15*0, 12*1

     Because all values are initially set to 1, any receptors north of
     the first row entered, or east of the last value provided in a
row,
     remain ON.

     (NGXRECP) -- Default: 1
 * NGXRECP = *

 ------------------------------------------------------------------------
---------

 INPUT GROUP: 2 -- Visibility Parameters (ASPEC = VISIB)
 --------------

     Test visibility options specified to see
     if they conform to FLAG 2008 configuration?
                            (MVISCHECK) -- Default: 1   ! MVISCHECK = 1
!
          0 =  NO checks are made
          1 =  Technical options must conform to FLAG 2008 visibility
guidance
                 ASPEC = VISIB
                 LVNO2 = T
                 NO2CALC = 1
                 RNO2NOX = 1.0
                 MVISBK = 8
                 M8_MODE = 5

     Some of the data entered for use with the FLAG 2008 configuration
     are specific to the Class I area being evaluated. These values can
     be checked within the CALPOST user interface when the name of the
     Class I area is provided.

     Name of Class I Area (used for QA purposes only)
                              (AREANAME) -- Default: User  ! AREANAME =
Wind Cave NP !


     Particle growth curve f(RH) for hygroscopic species
                                (MFRH) -- Default: 4   ! MFRH = 4 !
```

```
          1 =  IWAQM (1998) f(RH) curve (originally used with MVISBK=1)
          2 =  FLAG (2000) f(RH) tabulation
          3 =  EPA (2003) f(RH) tabulation
          4 =  IMPROVE (2006) f(RH) tabulations for sea salt, and for
small and
               large SULFATE and NITRATE particles;
               Used in Visibility Method 8 (MVISBK = 8 with M8_MODE =
1, 2, or 3)

     Maximum relative humidity (%) used in particle growth curve
                              (RHMAX) -- Default: 98  ! RHMAX = 95 !

     Modeled species to be included in computing the light extinction
      Include SULFATE?          (LVSO4) -- Default: T   ! LVSO4 = T !
      Include NITRATE?          (LVNO3) -- Default: T   ! LVNO3 = T !
      Include ORGANIC CARBON?   (LVOC)  -- Default: T   ! LVOC = T !
      Include COARSE PARTICLES? (LVPMC) -- Default: T   ! LVPMC = T !
      Include FINE PARTICLES?   (LVPMF) -- Default: T   ! LVPMF = T !
      Include ELEMENTAL CARBON? (LVEC)  -- Default: T   ! LVEC = T !
      Include NO2 absorption?   (LVNO2) -- Default: F   ! LVNO2 = T !
               With Visibility Method 8 -- Default: T
                                           FLAG (2008)

     And, when ranking for TOP-N, TOP-50, and Exceedance tables,
      Include BACKGROUND?       (LVBK)  -- Default: T   ! LVBK = T !

     Species name used for particulates in MODEL.DAT file
                    COARSE    (SPECPMC) -- Default: PMC ! SPECPMC = PMC
!
                    FINE      (SPECPMF) -- Default: PMF ! SPECPMF =
SOIL !

 Extinction Efficiency (1/Mm per ug/m**3)
 ----------------------------------------
     MODELED particulate species:
                PM  COARSE      (EEPMC) -- Default: 0.6 ! EEPMC = 0.6 !
                PM  FINE        (EEPMF) -- Default: 1.0 ! EEPMF = 1.0 !
     BACKGROUND particulate species:
                PM  COARSE    (EEPMCBK) -- Default: 0.6 ! EEPMCBK = 0.6
!
     Other species:
               AMMONIUM SULFATE (EESO4) -- Default: 3.0 ! EESO4 = 3.0 !
               AMMONIUM NITRATE (EENO3) -- Default: 3.0 ! EENO3 = 3.0 !
               ORGANIC CARBON   (EEOC)  -- Default: 4.0 ! EEOC = 4.0 !
               SOIL             (EESOIL)-- Default: 1.0 ! EESOIL = 1.0
!
               ELEMENTAL CARBON (EEEC)  -- Default: 10. ! EEEC = 10.0 !
               NO2 GAS          (EENO2) -- Default: .1755 ! EENO2 =
0.1755 !
     Visibility Method 8:
               AMMONIUM SULFATE (EESO4S)   Set Internally (small)
               AMMONIUM SULFATE (EESO4L)   Set Internally (large)
               AMMONIUM NITRATE (EENO3S)   Set Internally (small)
               AMMONIUM NITRATE (EENO3L)   Set Internally (large)
               ORGANIC CARBON   (EEOCS)    Set Internally (small)
               ORGANIC CARBON   (EEOCL)    Set Internally (large)
               SEA SALT         (EESALT)   Set Internally
```

```
 Background Extinction Computation
 ---------------------------------

     Method used for the 24h-average of percent change of light
extinction:
     Hourly ratio of source light extinction / background light
extinction
     is averaged?              (LAVER) -- Default: F   ! LAVER = F !


     Method used for background light extinction
                              (MVISBK) -- Default: 8   ! MVISBK = 8 !
                                          FLAG (2008)

          1 =  Supply single light extinction and hygroscopic fraction
               - Hourly F(RH) adjustment applied to hygroscopic
background
                 and modeled sulfate and nitrate
          2 =  Background extinction from speciated PM concentrations
(A)
               - Hourly F(RH) adjustment applied to observed and
modeled sulfate
                 and nitrate
               - F(RH) factor is capped at F(RHMAX)
          3 =  Background extinction from speciated PM concentrations
(B)
               - Hourly F(RH) adjustment applied to observed and
modeled sulfate
                 and nitrate
               - Receptor-hour excluded if RH>RHMAX
               - Receptor-day excluded if fewer than 6 valid receptor-
hours
          4 =  Read hourly transmissometer background extinction
measurements
               - Hourly F(RH) adjustment applied to modeled sulfate and
nitrate
               - Hour excluded if measurement invalid (missing,
interference,
                 or large RH)
               - Receptor-hour excluded if RH>RHMAX
               - Receptor-day excluded if fewer than 6 valid receptor-
hours
          5 =  Read hourly nephelometer background extinction
measurements
               - Rayleigh extinction value (BEXTRAY) added to
measurement
               - Hourly F(RH) adjustment applied to modeled sulfate and
nitrate
               - Hour excluded if measurement invalid (missing,
interference,
                 or large RH)
               - Receptor-hour excluded if RH>RHMAX
               - Receptor-day excluded if fewer than 6 valid receptor-
hours
          6 =  Background extinction from speciated PM concentrations
               - FLAG (2000) monthly RH adjustment factor applied to
```

observed and
and modeled sulfate and nitrate
7 = Use observed weather or prognostic weather information
for
background extinction during weather events; otherwise,
use Method 2
- Hourly F(RH) adjustment applied to modeled sulfate and
nitrate
- F(RH) factor is capped at F(RHMAX)
- During observed weather events, compute Bext from
visual range
if using an observed weather data file, or
- During prognostic weather events, use Bext from the
prognostic
weather file
- Use Method 2 for hours without a weather event
8 = Background extinction from speciated PM concentrations
using
the IMPROVE (2006) variable extinction efficiency
formulation
(MFRH must be set to 4)
- Split between small and large particle concentrations
of
SULFATES, NITRATES, and ORGANICS is a function of
concentration
and different extinction efficiencies are used for
each
- Source-induced change in visibility includes the
increase in
extinction of the background aerosol due to the change
in the
extinction efficiency that now depends on total
concentration.
- Fsmall(RH) and Flarge(RH) adjustments for small and
large
particles are applied to observed and modeled sulfate
and
nitrate concentrations
- Fsalt(RH) adjustment for sea salt is applied to
background
sea salt concentrations
- F(RH) factors are capped at F(RHMAX)
- RH for Fsmall(RH), Flarge(RH), and Fsalt(RH) may be
obtained
from hourly data as in Method 2 or from the FLAG
monthly RH
adjustment factor used for Method 6 where EPA F(RH)
tabulation
is used to infer RH, or monthly Fsmall, Flarge, and
Fsalt RH
adjustment factors can be directly entered.
Furthermore, a monthly RH factor may be applied to
either hourly
concentrations or daily concentrations to obtain the
24-hour
extinction.
These choices are made using the M8_MODE selection.

```
     Additional inputs used for MVISBK = 1:
     -------------------------------------
      Background light extinction (1/Mm)
                              (BEXTBK) -- No default   * BEXTBK = *
      Percentage of particles affected by relative humidity
                              (RHFRAC) -- No default   * RHFRAC = *

     Additional inputs used for MVISBK = 6,8:
     ----------------------------------------
      Extinction coefficients for hygroscopic species (modeled and
      background) are computed using a monthly RH adjustment factor
      in place of an hourly RH factor (VISB.DAT file is NOT needed).
      Enter the 12 monthly factors here (RHFAC).  Month 1 is January.

      (RHFAC)  -- No default     ! RHFAC =
2.8,2.8,2.8,2.6,2.8,2.7,2.4,2.4,2.3,2.3,2.9,2.8 !

     Additional inputs used for MVISBK = 7:
     --------------------------------------
      The weather data file (DATSAV abbreviated space-delimited) that
      is identified as VSRN.DAT may contain data for more than one
      station.  Identify the stations that are needed in the order in
      which they will be used to obtain valid weather and visual range.
      The first station that contains valid data for an hour will be
      used.  Enter up to MXWSTA (set in PARAMS file) integer station
IDs
      of up to 6 digits each as variable IDWSTA, and enter the
corresponding
      time zone for each, as variable TZONE (= UTC-LST).

      A prognostic weather data file with Bext for weather events may
be used
      in place of the observed weather file.  Identify this as the
VSRN.DAT
      file and use a station ID of IDWSTA = 999999, and TZONE = 0.

      NOTE:  TZONE identifies the time zone used in the dataset.  The
             DATSAV abbreviated space-delimited data usually are
prepared
             with UTC time rather than local time, so TZONE is
typically
             set to zero.

      (IDWSTA)   -- No default   * IDWSTA = *
      (TZONE)    -- No default   * TZONE = *

     Additional inputs used for MVISBK = 2,3,6,7,8:
     ----------------------------------------------
      Background extinction coefficients are computed from monthly
      CONCENTRATIONS of ammonium sulfate (BKSO4), ammonium nitrate
(BKNO3),
      coarse particulates (BKPMC), organic carbon (BKOC), soil
(BKSOIL), and
      elemental carbon (BKEC).  Month 1 is January.
      (ug/m**3)
```

```
      (BKSO4)  -- No default     ! BKSO4 =
0.12,0.12,0.12,0.12,0.12,0.12,0.12,0.12,0.12,0.12,0.12,0.12 !
      (BKNO3)  -- No default     ! BKNO3 =
0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1 !
      (BKPMC)  -- No default     ! BKPMC =
2.98,2.98,2.98,2.98,2.98,2.98,2.98,2.98,2.98,2.98,2.98,2.98 !
      (BKOC)   -- No default     ! BKOC =
0.6,0.6,0.6,0.6,0.6,0.6,0.6,0.6,0.6,0.6,0.6,0.6 !
      (BKSOIL) -- No default     ! BKSOIL =
0.49,0.49,0.49,0.49,0.49,0.49,0.49,0.49,0.49,0.49,0.49,0.49 !
      (BKEC)   -- No default     ! BKEC =
0.02,0.02,0.02,0.02,0.02,0.02,0.02,0.02,0.02,0.02,0.02,0.02 !

     Additional inputs used for MVISBK = 8:
     -------------------------------------
      Extinction coefficients for hygroscopic species (modeled and
      background) may be computed using hourly RH values and hourly
      modeled concentrations, or using monthly RH values inferred from
      the RHFAC adjustment factors and either hourly or daily modeled
      concentrations, or using monthly RHFSML, RHFLRG, and RHFSEA
adjustment
      factors and either hourly or daily modeled concentrations.

      (M8_MODE) -- Default: 5     ! M8_MODE = 5 !
                   FLAG (2008)

           1 = Use hourly RH values from VISB.DAT file with hourly
               modeled and monthly background concentrations.
           2 = Use monthly RH from monthly RHFAC and EPA (2003) f(RH)
tabulation
               with hourly modeled and monthly background
concentrations.
               (VISB.DAT file is NOT needed).
           3 = Use monthly RH from monthly RHFAC with EPA (2003) f(RH)
tabulation
               with daily modeled and monthly background
concentrations.
               (VISB.DAT file is NOT needed).
           4 = Use monthly RHFSML, RHFLRG, and RHFSEA with hourly
modeled
               and monthly background concentrations.
               (VISB.DAT file is NOT needed).
           5 = Use monthly RHFSML, RHFLRG, and RHFSEA with daily
modeled
               and monthly background concentrations.
               (VISB.DAT file is NOT needed).

      Background extinction coefficients are computed from monthly
      CONCENTRATIONS of sea salt (BKSALT).  Month 1 is January.
      (ug/m**3)

      (BKSALT) -- No default     ! BKSALT =
0.01,0.01,0.01,0.01,0.01,0.01,0.01,0.01,0.01,0.01,0.01,0.01 !

      Extinction coefficients for hygroscopic species (modeled and
      background) can be computed using monthly RH adjustment factors
      in place of an hourly RH factor (VISB.DAT file is NOT needed).
```

```
      Enter the 12 monthly factors here (RHFSML,RHFLRG,RHFSEA).
      Month 1 is January.  (Used if M8_MODE = 4 or 5)

      Small ammonium sulfate and ammonium nitrate particle sizes
      (RHFSML) -- No default     ! RHFSML =
2.81,2.81,2.86,2.82,3.06,2.81,2.5,2.46,2.44,2.52,2.97,2.83 !

      Large ammonium sulfate and ammonium nitrate particle sizes
      (RHFLRG) -- No default     ! RHFLRG =
2.23,2.22,2.22,2.18,2.32,2.18,2,1.97,1.95,2,2.3,2.24 !

      Sea salt particles
      (RHFSEA) -- No default     ! RHFSEA =
3.25,3.2,3.13,3.01,3.22,3.06,2.75,2.68,2.63,2.75,3.28,3.24 !

     Additional inputs used for MVISBK = 2,3,5,6,7,8:
     ------------------------------------------------
      Extinction due to Rayleigh scattering is added (1/Mm)
                              (BEXTRAY) -- Default: 10.0 ! BEXTRAY = 10
!

 !END!
 ------------------------------------------------------------------------
---------

 INPUT GROUP: 3 -- Output options
 --------------

 Documentation
 -------------

     Documentation records contained in the header of the
     CALPUFF output file may be written to the list file.
     Print documentation image?
                                 (LDOC) -- Default: F   ! LDOC = F !

 Output Units
 ------------
     Units for All Output       (IPRTU) -- Default: 1   ! IPRTU = 1 !
                     for             for
                 Concentration    Deposition
        1 =          g/m**3          g/m**2/s
        2 =         mg/m**3         mg/m**2/s
        3 =         ug/m**3         ug/m**2/s
        4 =         ng/m**3         ng/m**2/s
        5 =       Odour Units

     Visibility: extinction expressed in 1/Mega-meters (IPRTU is
ignored)


 Averaging time(s) reported
 --------------------------

     1-pd averages           (L1PD) -- Default: T   ! L1PD = F !
     (pd = averaging period of model output)
```

```
     1-hr averages           (L1HR) -- Default: T   ! L1HR = F !

     3-hr averages           (L3HR) -- Default: T   ! L3HR = F !

     24-hr averages         (L24HR) -- Default: T   ! L24HR = T !

     Run-length averages    (LRUNL) -- Default: T   ! LRUNL = F !

     User-specified averaging time in hours, minutes, seconds
     - results for this averaging time are reported if it is not zero

                            (NAVGH) -- Default: 0   ! NAVGH = 0 !
                            (NAVGM) -- Default: 0   ! NAVGM = 0 !
                            (NAVGS) -- Default: 0   ! NAVGS = 0 !


  Types of tabulations reported
  -----------------------------

     1) Visibility: daily visibility tabulations are always reported
                    for the selected receptors when ASPEC = VISIB.
                    In addition, any of the other tabulations listed
                    below may be chosen to characterize the light
                    extinction coefficients.
                    [List file or Plot/Analysis File]


     2) Top 50 table for each averaging time selected
        [List file only]
                             (LT50) -- Default: T   ! LT50 = T !

     3) Top 'N' table for each averaging time selected
        [List file or Plot file]
                            (LTOPN) -- Default: F   ! LTOPN = T !

          -- Number of 'Top-N' values at each receptor
             selected (NTOP must be <= 4)
                             (NTOP) -- Default: 4   ! NTOP = 4 !

          -- Specific ranks of 'Top-N' values reported
             (NTOP values must be entered)
                     (ITOP(4) array) -- Default:     ! ITOP = 1,2,3,4 !
                                        1,2,3,4


     4) Threshold exceedance counts for each receptor and each averaging
        time selected
        [List file or Plot file]
                            (LEXCD) -- Default: F   ! LEXCD = F !

          -- Identify the threshold for each averaging time by assigning
a
             non-negative value (output units).

                                     -- Default: -1.0
             Threshold for  1-hr averages   (THRESH1) ! THRESH1 = -1.0 !
             Threshold for  3-hr averages   (THRESH3) ! THRESH3 = -1.0 !
```

```
            Threshold for 24-hr averages  (THRESH24) ! THRESH24 = -1.0
!
            Threshold for NAVG-hr averages (THRESHN) ! THRESHN = -1.0 !


         -- Counts for the shortest averaging period selected can be
            tallied daily, and receptors that experience more than
NCOUNT
            counts over any NDAY period will be reported.  This type of
            exceedance violation output is triggered only if NDAY > 0.

            Accumulation period(Days)
                            (NDAY) -- Default: 0   ! NDAY = 0 !
            Number of exceedances allowed
                          (NCOUNT) -- Default: 1   ! NCOUNT = 1 !


    5) Selected day table(s)

       Echo Option -- Many records are written each averaging period
       selected and output is grouped by day
       [List file or Plot file]
                            (LECHO) -- Default: F   ! LECHO = F !

       Timeseries Option -- Averages at all selected receptors for
       each selected averaging period are written to timeseries files.
       Each file contains one averaging period, and all receptors are
       written to a single record each averaging time.
       [TSERIES_ASPEC_ttHR_CONC_TSUNAM.DAT files]
                            (LTIME) -- Default: F   ! LTIME = F !

       Peak Value Option -- Averages at all selected receptors for
       each selected averaging period are screened and the peak value
       each period is written to timeseries files.
       Each file contains one averaging period.
       [PEAKVAL_ASPEC_ttHR_CONC_TSUNAM.DAT files]
                            (LPEAK) -- Default: F   ! LPEAK = F !

         -- Days selected for output
                       (IECHO(366)) -- Default: 366*0
            ! IECHO = 366*0 !
            (366 values must be entered)

 Plot output options
 -------------------

      Plot files can be created for the Top-N, Exceedance, and Echo
      tables selected above.  Two formats for these files are
available,
      DATA and GRID.  In the DATA format, results at all receptors are
      listed along with the receptor location [x,y,val1,val2,...].
      In the GRID format, results at only gridded receptors are
written,
      using a compact representation.  The gridded values are written
in
      rows (x varies), starting with the most southern row of the grid.
      The GRID format is given the .GRD extension, and includes headers
```

```
      compatible with the SURFER(R) plotting software.

      A plotting and analysis file can also be created for the daily
      peak visibility summary output, in DATA format only.

      Generate Plot file output in addition to writing tables
      to List file?
                                (LPLT) -- Default: F   ! LPLT = T !

      Use GRID format rather than DATA format,
      when available?
                                (LGRD) -- Default: F   ! LGRD = F !


 Auxiliary Output Files (for subsequent analyses)
 ------------------------------------------------

       Visibility

       A separate output file may be requested that contains the change
       in visibility at each selected receptor when ASPEC = VISIB.
This
       file can be processed to construct visibility measures that are
       not available in CALPOST.

       Output file with the visibility change at each receptor?
                                (MDVIS) -- Default: 0   ! MDVIS = 1 !

            0 =  Do Not create file
            1 =  Create file of DAILY (24 hour) Delta-Deciview
            2 =  Create file of DAILY (24 hour) Extinction Change (%)
            3 =  Create file of HOURLY Delta-Deciview
            4 =  Create file of HOURLY Extinction Change (%)


 Additional Debug Output
 -----------------------

    Output selected information to List file
     for debugging?
                                (LDEBUG) -- Default: F  ! LDEBUG = F !

    Output hourly extinction information to REPORT.HRV?
     (Visibility Method 7)
                               (LVEXTHR) -- Default: F  ! LVEXTHR = F !

 !END!

 ------------------------------------------------
 NOTICE: Starting year in control file sets the
         expected century for the simulation.  All
         YY years are converted to YYYY years in
         the range:  1956 2055
 ------------------------------------------------


**********************************************************************
```

```
************************************************************
                                          CALPOST  Version 6.221
Level 080724
************************************************************************
************************************************************



  CALPOST Control File Input Summary -------------------------

     Replace run data with data in Puff file 1=Y:    0
                       Run starting date -- year: 2006
                                           month:    1
                                             day:    1
                                      Julian day:    1
              Time at start of run  -  hour(0-23):    1
                                    -      minute:    0
                                    -      second:    0

                          Run ending date -- year: 2006
                                           month:   12
                                             day:   30
                                      Julian day:  364
                Time at end of run  -  hour(0-23):    5
                                    -      minute:    0
                                    -      second:    0


                         Base time zone (Group 1):   7.0

 Every period of data processed -- NREP = 1


  Species & Concentration/Deposition Information
                                        Species: VISIB
                          Layer of processed data:    1
     (>0=conc, -1=dry flux, -2=wet flux, -3=wet & dry flux)
                   Multiplicative scaling factor: 0.0000E+00
                         Additive scaling factor: 0.0000E+00
                  Hourly background values used?: F


  SAMPLER option
                               Processing method: 0
                   0= SAMPLER option not used
                   1= Report total modeled impact (list file)
                   2= TRACEBACK mode (DAT files)
                   3= TRACEBACK mode with sampling factor (DAT files)


  Source information
                  Source contribution processing: 0
                   0= No source contributions
                   1= Contributions are summed
                   2= TRACEBACK mode for 1 receptor
                   3= Reported TOTAL is processed
```

```
  Receptor information
                    Gridded receptors processed?: F
                   Discrete receptors processed?: T
       CTSG Complex terrain receptors processed?: F

  Discrete Receptors Processed

 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1
 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1
 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1
 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1
 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1


  Visibility Processing Selected

  Visibility Options are Checked for FLAG 2008

  Class I Area: WIND CAVE NP

  Extinction Computation includes:
                            SULFATES
                            NITRATES
                            NO2 GAS
               Fraction CALPUFF NOx used as NO2 :   1.000
                            ORGANIC CARBON
                            ELEMENTAL CARBON
                            COARSE PARTICLES
                            FINE PARTICLES
                            BACKGROUND
               Particle f(RH) growth curve(s)   :   IMPROVE (2006)
Tables
               Max. RH % for particle growth (%):  95.000

  Species name for modeled particulates
                                        coarse: PMC
                                          fine: SOIL

  Extinction Efficiency (1/Mm per ug/m**3)
                            ammonium sulfate S:    2.2000
                            ammonium sulfate L:    4.8000
                            ammonium nitrate S:    2.4000
                            ammonium nitrate L:    5.1000
                              organic carbon S:    2.8000
                              organic carbon L:    6.1000
                                      sea salt:    1.7000
                                       NO2 gas:    0.1755
                                          soil:    1.0000
                              elemental carbon:   10.0000
                             MODELED coarse PM:    0.6000
                             MODELED   fine PM:    1.0000
```

BACKGRND coarse PM: 0.6000

Background Extinction Calculation Method 8

Method 8 Mode: 5
(24-hr avg conc. with monthly F(RH) data)

Monthly RH factor for small particles:

1	.2810E+01
2	.2810E+01
3	.2860E+01
4	.2820E+01
5	.3060E+01
6	.2810E+01
7	.2500E+01
8	.2460E+01
9	.2440E+01
10	.2520E+01
11	.2970E+01
12	.2830E+01

Monthly RH factor for large particles:

1	.2230E+01
2	.2220E+01
3	.2220E+01
4	.2180E+01
5	.2320E+01
6	.2180E+01
7	.2000E+01
8	.1970E+01
9	.1950E+01
10	.2000E+01
11	.2300E+01
12	.2240E+01

Monthly RH factor for sea salt:

1	.3250E+01
2	.3200E+01
3	.3130E+01
4	.3010E+01
5	.3220E+01
6	.3060E+01
7	.2750E+01
8	.2680E+01
9	.2630E+01
10	.2750E+01
11	.3280E+01
12	.3240E+01

Rayleigh scattering extinction (1/Mm): 10.00

Monthly background conc. (ug/m**3):

	(NH4)2SO4	(NH4)NO3	PM-C	OC	SOIL	EC	SEA SALT
1	.1200E+00	.1000E+00	.2980E+01	.6000E+00	.4900E+00	.2000E-01	.1000E-01

```
    2  .1200E+00  .1000E+00  .2980E+01  .6000E+00  .4900E+00  .2000E-01
.1000E-01
    3  .1200E+00  .1000E+00  .2980E+01  .6000E+00  .4900E+00  .2000E-01
.1000E-01
    4  .1200E+00  .1000E+00  .2980E+01  .6000E+00  .4900E+00  .2000E-01
.1000E-01
    5  .1200E+00  .1000E+00  .2980E+01  .6000E+00  .4900E+00  .2000E-01
.1000E-01
    6  .1200E+00  .1000E+00  .2980E+01  .6000E+00  .4900E+00  .2000E-01
.1000E-01
    7  .1200E+00  .1000E+00  .2980E+01  .6000E+00  .4900E+00  .2000E-01
.1000E-01
    8  .1200E+00  .1000E+00  .2980E+01  .6000E+00  .4900E+00  .2000E-01
.1000E-01
    9  .1200E+00  .1000E+00  .2980E+01  .6000E+00  .4900E+00  .2000E-01
.1000E-01
   10  .1200E+00  .1000E+00  .2980E+01  .6000E+00  .4900E+00  .2000E-01
.1000E-01
   11  .1200E+00  .1000E+00  .2980E+01  .6000E+00  .4900E+00  .2000E-01
.1000E-01
   12  .1200E+00  .1000E+00  .2980E+01  .6000E+00  .4900E+00  .2000E-01
.1000E-01

  Optional output file for visibility      1

        Create file of DAILY (24 hour) Delta-Deciview



  Output options
                      Units requested for output:   (1/Mega-m)

  Averaging time(s) selected
        User-specified averaging time (hr:mm:ss):     0: 0: 0
                                    1-pd averages:     F
                                    1-hr averages:     F
                                    3-hr averages:     F
                                   24-hr averages:     T
                             User-specified averages:     F
                              Length of run averages:     F

  Output components selected
                                         Top-50:     T
                    Top-N values at each receptor:     T
               Exceedance counts at each receptor:     F
       Output selected information for debugging:     F
                  Echo tables for selected days:     F
                  Time-series for selected days:     F
        Peak value Time-series for selected days:     F

  Top "n" table control
         Number of "top" values at each receptor:     4
         Specific ranks of "top" values reported:   1   2   3   4


  Plot file option
                              Plot files created:     T
```

Plot file format is DATA: .DAT

MAPSPEC: Species Mapping
  Number of species-levels in file : 15
  Number of species-levels processed: 16

Input ID	Processing ID	Name	
1	1	SO4	1
2	2	HNO3	1
3	3	NO3	1
4	4	PM425	1
5	5	SO2	1
6	6	NOX	1
7	7	PM800	1
8	8	PM187	1
9	9	PM081	1
10	10	PM056	1
11	11	PM112	1
12	12	SOIL	1
13	13	SOA	1
14	14	EC	1
15	15	PMC	1

Visibility Species

	Processing ID	Name	
sulfate	1	SO4	1
no2gas	16	NO2	1
noxgas	6	NOX	1
nitrate	3	NO3	1
specpmf	12	SOIL	1
specpmc	15	PMC	1
orgcarb	13	SOA	1
lmncarb	14	EC	1

IDENTIFICATION OF PROCESSED MODEL FILE ----------

CALPUFF 5.8 070623

Generated by CALPUFF View - Version 4.0.0 - 12/29/2010

Averaging time for values reported from model:
  1 HOUR

Number of averaging periods in file from model:
  8716

Chemical species names for each layer in model:
SO4 1
HNO3 1
NO3 1
PM425 1
SO2 1
NOX 1

```
 PM800         1
 PM187         1
 PM081         1
 PM056         1
 PM112         1
 SOIL          1
 SOA           1
 EC            1
 PMC           1



 QA Information -- Internal Representation of Data

 CONTENTS OF CONTROL FILE ------------------------
  METRUN              = 0
  isyr,ismo,isdy      = 2006 1 1
  ishr,ismin,issec    = 1 0 0
  ieyr,iemo,iedy      = 2006 12 30
  iehr,iemin,iesec    = 5 0 0
  nper                = 8716
  aspec,ilayer        =VISIB        1
  asplv               =VISIB  BOESNCFG
  NO2CALC             = 1
     RNO2NOX          = 1.00000000
  MSOURCE             = 0
  MCALMPRO            = 0
  MET1FMT             = 1
  LG,LD,LCT,LDRING    = F T F F
  IBGRID,IEGRID       = -1 -1
  JBGRID,JEGRID       = -1 -1
  NDRECP              =
 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1
 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1
 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1
 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1
 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0 0
0 0 0 0 0
 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0
 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0
 0 0 0 0 0 0 0 0 0 0
  a,b,LSCALE          = 0.00000000E+00 0.00000000E+00 F
  LBACK               = F
  MVISBK              = 8
  MVISCHECK           = 1
  AREANAME            =WIND CAVE NP
  MFRH                = 4
  RHMAX,BEXTRAY       = 95.0000000 10.0000000
  RHFRAC,BEXTBK       = 0.00000000E+00 0.00000000E+00
  LVSO4,LVNO3,LVNO2   = T T T
  LVOC,LVEC           = T T
```

```
 LVPMC,LVPMF,LVBK    = T T T
 SPECPMC,SPECPMF     =PMC         SOIL
 EEPMC,EEPMF,EEPMCBK = 0.600000024 1.00000000 0.600000024
 EESO4,EENO3,EEOC    = 3.00000000 3.00000000 4.00000000
 EESO4S,EENO3S,EEOCS = 2.20000005 2.40000010 2.79999995
 EESO4L,EENO3L,EEOCL = 4.80000019 5.09999990 6.09999990
 EESOIL,EEEC,EENO2   = 1.00000000 10.0000000 0.175500005
 navg,ntop           = 0 4
 navgh,navgm,navgs   = 0 0 0
 itop = 1 2 3 4
 L[1,3,24]HR         = F F T
 LNAVG, LRUNL        = F F
 LT50, LTOPN, LEXCD  = T T F
 LECHO, LTIME, LPEAK = F F F
 THRESH1             = -1.00000000
 THRESH3             = -1.00000000
 THRESH24            = -1.00000000
 THRESHN             = -1.00000000
 LPLT, LGRD          = T F
 MDVIS               = 1
 LDEBUG              = F
 LCTSG               = F

CONTENTS OF HEADER OF MODEL OUTPUT FILE ---------
 model :   CALPUFF     5.8         070623
 msyr,mjsday      = 2006 1
 mshr,mssec       = 1 0
 nsecdt (period)  = 3600
 xbtz             = 7.00000000
 mnper,nszout,mavgpd = 8716 15 1
 xorigkm,yorigkm,nssta =  -506.000031 298.000000 0
 ielmet,jelmet = 313 181
 delx,dely,nz = 4.00000000 4.00000000 1
 iastar,iastop,jastar,jastop = 1 120 1 120
 isastr,isastp,jsastr,jsastp = 1 75 1 75
 (computed) ngx,ngy  = 75 75
 meshdn,npts,nareas  = 1 1 0
 nlines,nvols        = 0 0
 ndrec,nctrec,LSGRID = 289 0 T

Discrete Receptors (n,x,y,z):
1 -416.171021 380.781006 1280.00000
2 -415.541016 380.742004 1280.00000
3 -414.911041 380.701996 1271.00000
4 -417.376038 381.730011 1280.00000
5 -416.746033 381.690002 1280.00000
6 -416.116028 381.651001 1280.00000
7 -415.486023 381.610992 1280.00000
8 -414.856018 381.571014 1219.00000
9 -414.226044 381.532013 1219.00000
10 -413.596039 381.492004 1252.00000
11 -417.321045 382.598999 1280.00000
12 -416.691040 382.558990 1280.00000
13 -416.062042 382.519989 1280.00000
14 -415.432037 382.480011 1280.00000
15 -414.801025 382.440002 1244.00000
16 -414.171021 382.401001 1244.00000
```

17 -413.541016 382.360992 1236.00000
18 -412.912018 382.321991 1226.00000
19 -412.281036 382.282013 1209.00000
20 -417.266022 383.468994 1341.00000
21 -416.637024 383.428986 1330.00000
22 -416.007019 383.389008 1307.00000
23 -415.377045 383.348999 1280.00000
24 -414.747040 383.309998 1274.00000
25 -414.117035 383.269989 1271.00000
26 -413.487030 383.230011 1274.00000
27 -412.857025 383.191010 1280.00000
28 -412.227020 383.152008 1224.00000
29 -416.582031 384.298004 1341.00000
30 -415.952026 384.257996 1336.00000
31 -415.322021 384.217987 1290.00000
32 -414.692017 384.178009 1256.00000
33 -414.062042 384.139008 1219.00000
34 -413.432037 384.098999 1219.00000
35 -412.803040 384.059998 1219.00000
36 -412.172028 384.019989 1177.00000
37 -415.897034 385.127014 1340.00000
38 -415.267029 385.087006 1290.00000
39 -414.637024 385.048004 1280.00000
40 -414.008026 385.007996 1280.00000
41 -413.378021 384.968994 1219.00000
42 -412.748016 384.928986 1271.00000
43 -412.118042 384.890015 1251.00000
44 -415.842041 385.996002 1334.00000
45 -415.213043 385.957001 1298.00000
46 -414.583038 385.916992 1280.00000
47 -413.953033 385.877991 1280.00000
48 -413.323029 385.838013 1280.00000
49 -412.694031 385.799011 1280.00000
50 -412.064026 385.759003 1219.00000
51 -409.545044 385.601990 1186.00000
52 -408.915039 385.562988 1158.00000
53 -408.286041 385.523987 1140.00000
54 -407.655029 385.484985 1145.00000
55 -407.026031 385.446014 1152.00000
56 -406.396027 385.407013 1158.00000
57 -405.767029 385.368988 1158.00000
58 -415.787018 386.864990 1344.00000
59 -415.158020 386.825989 1294.00000
60 -414.528046 386.786011 1280.00000
61 -413.898041 386.746002 1280.00000
62 -413.269043 386.707001 1280.00000
63 -412.639038 386.667999 1280.00000
64 -412.009033 386.627991 1220.00000
65 -409.491028 386.471008 1219.00000
66 -408.861023 386.432007 1158.00000
67 -408.232025 386.393005 1153.00000
68 -407.602020 386.354004 1156.00000
69 -406.972015 386.315002 1158.00000
70 -406.343018 386.276001 1157.00000
71 -405.713043 386.238007 1219.00000
72 -415.733032 387.734985 1341.00000
73 -415.103027 387.695007 1306.00000

74 -414.473022 387.654999 1304.00000
75 -413.844025 387.615997 1341.00000
76 -413.214020 387.575989 1289.00000
77 -412.585022 387.536987 1272.00000
78 -411.955017 387.497009 1219.00000
79 -411.326019 387.458008 1280.00000
80 -410.696045 387.419006 1280.00000
81 -410.066040 387.380005 1220.00000
82 -409.437042 387.341003 1218.00000
83 -408.807037 387.300995 1184.00000
84 -408.178040 387.261993 1158.00000
85 -407.548035 387.222992 1158.00000
86 -406.918030 387.184998 1158.00000
87 -406.289032 387.145996 1158.00000
88 -405.660034 387.106995 1212.00000
89 -415.678040 388.604004 1411.00000
90 -415.048035 388.563995 1341.00000
91 -414.419037 388.523987 1348.00000
92 -413.789032 388.484985 1347.00000
93 -413.160034 388.445007 1297.00000
94 -412.531036 388.406006 1284.00000
95 -411.901031 388.365997 1284.00000
96 -411.271027 388.326996 1280.00000
97 -410.642029 388.287994 1236.00000
98 -410.012024 388.248993 1219.00000
99 -409.383026 388.209991 1221.00000
100 -408.753021 388.170013 1202.00000
101 -408.124023 388.131012 1158.00000
102 -407.494019 388.092010 1158.00000
103 -406.865021 388.053986 1158.00000
104 -406.235016 388.015015 1219.00000
105 -405.606018 387.976013 1219.00000
106 -404.976044 387.937012 1191.00000
107 -404.347015 387.898987 1152.00000
108 -415.623016 389.472992 1402.00000
109 -414.994019 389.433014 1402.00000
110 -414.364044 389.394012 1402.00000
111 -413.735016 389.354004 1376.00000
112 -413.105042 389.315002 1341.00000
113 -412.476044 389.274994 1336.00000
114 -411.846039 389.235992 1322.00000
115 -411.217041 389.196991 1280.00000
116 -410.588043 389.157013 1274.00000
117 -409.958038 389.118011 1274.00000
118 -409.329041 389.079010 1280.00000
119 -408.700043 389.040009 1219.00000
120 -408.070038 389.001007 1177.00000
121 -407.440033 388.962006 1158.00000
122 -406.811035 388.923004 1163.00000
123 -406.182037 388.884003 1219.00000
124 -405.553040 388.845001 1165.00000
125 -404.923035 388.807007 1166.00000
126 -404.293030 388.768005 1158.00000
127 -415.568024 390.342010 1402.00000
128 -414.939026 390.302002 1402.00000
129 -414.309021 390.263000 1451.00000
130 -413.680023 390.222992 1360.00000

131 -413.051025 390.183990 1341.00000
132 -412.422028 390.144012 1341.00000
133 -411.792023 390.105011 1341.00000
134 -411.163025 390.065002 1288.00000
135 -410.534027 390.026001 1280.00000
136 -409.904022 389.987000 1280.00000
137 -409.275024 389.947998 1280.00000
138 -408.646027 389.908997 1273.00000
139 -408.016022 389.869995 1280.00000
140 -407.387024 389.830994 1201.00000
141 -406.758026 389.791992 1211.00000
142 -406.128021 389.752991 1219.00000
143 -405.499023 389.713989 1219.00000
144 -404.869019 389.675995 1214.00000
145 -404.240021 389.636993 1170.00000
146 -403.611023 389.597992 1158.00000
147 -415.513031 391.210999 1402.00000
148 -414.884033 391.171997 1455.00000
149 -414.255035 391.131989 1402.00000
150 -413.626038 391.092010 1399.00000
151 -412.996033 391.053009 1390.00000
152 -412.367035 391.014008 1350.00000
153 -411.738037 390.973999 1341.00000
154 -411.109039 390.934998 1283.00000
155 -410.480042 390.895996 1289.00000
156 -409.850037 390.855988 1291.00000
157 -409.221039 390.816986 1291.00000
158 -408.592041 390.778015 1280.00000
159 -407.963043 390.739014 1280.00000
160 -407.333038 390.700012 1219.00000
161 -406.704041 390.661011 1218.00000
162 -406.075043 390.622986 1252.00000
163 -405.446045 390.584015 1219.00000
164 -404.816040 390.545013 1189.00000
165 -404.187042 390.506989 1158.00000
166 -403.558044 390.467987 1153.00000
167 -415.458038 392.079987 1445.00000
168 -414.829041 392.040985 1402.00000
169 -414.200043 392.001007 1462.00000
170 -413.571045 391.960999 1402.00000
171 -412.942017 391.921997 1441.00000
172 -412.313019 391.882996 1395.00000
173 -411.683044 391.842987 1341.00000
174 -411.054016 391.803986 1320.00000
175 -410.425018 391.765015 1322.00000
176 -409.796021 391.725006 1296.00000
177 -409.167023 391.686005 1280.00000
178 -408.538025 391.647003 1276.00000
179 -407.909027 391.608002 1274.00000
180 -407.279022 391.569000 1280.00000
181 -406.650024 391.529999 1269.00000
182 -406.021027 391.492004 1217.00000
183 -405.392029 391.453003 1210.00000
184 -404.762024 391.414001 1173.00000
185 -414.775024 392.910004 1402.00000
186 -414.145020 392.869995 1387.00000
187 -413.516022 392.830994 1346.00000

188 -412.887024 392.790985 1341.00000
189 -412.259033 392.752014 1341.00000
190 -333.610016 400.507996 853.000000
191 -332.353027 400.444000 865.000000
192 -331.096039 400.381012 850.000000
193 -333.521027 402.247986 853.000000
194 -332.265045 402.183990 853.000000
195 -331.009033 402.121002 853.000000
196 -329.753021 402.057007 852.000000
197 -328.496033 401.994995 853.000000
198 -312.162018 401.199005 791.000000
199 -310.906036 401.139008 789.000000
200 -309.649017 401.079987 789.000000
201 -308.393036 401.020996 792.000000
202 -307.136017 400.962006 789.000000
203 -305.880035 400.903992 768.000000
204 -334.689026 404.050995 853.000000
205 -333.433044 403.987000 853.000000
206 -332.177032 403.924011 853.000000
207 -330.921021 403.859985 853.000000
208 -329.665039 403.796997 860.000000
209 -328.409027 403.734009 910.000000
210 -327.153046 403.671997 853.000000
211 -325.897034 403.609009 848.000000
212 -324.641022 403.546997 853.000000
213 -313.336029 402.998993 792.000000
214 -312.080017 402.938995 792.000000
215 -310.824036 402.878998 792.000000
216 -309.567017 402.820007 792.000000
217 -307.055023 402.701996 792.000000
218 -332.089020 405.664001 853.000000
219 -330.834045 405.600006 853.000000
220 -329.578033 405.536987 853.000000
221 -328.322021 405.473999 853.000000
222 -327.067017 405.411987 914.000000
223 -325.811035 405.348999 853.000000
224 -324.555023 405.286987 853.000000
225 -314.509033 404.799011 810.000000
226 -313.253021 404.739014 828.000000
227 -332.002045 407.403992 852.000000
228 -330.746033 407.339996 852.000000
229 -329.491028 407.277008 851.000000
230 -328.235016 407.214996 852.000000
231 -326.980042 407.152008 853.000000
232 -325.725037 407.089996 853.000000
233 -324.469025 407.027008 853.000000
234 -315.681030 406.598999 823.000000
235 -334.424042 409.270996 845.000000
236 -333.168030 409.207001 828.000000
237 -331.914032 409.144012 835.000000
238 -330.658020 409.079987 848.000000
239 -329.404022 409.016998 843.000000
240 -328.148041 408.954010 844.000000
241 -326.894043 408.891998 851.000000
242 -325.638031 408.829010 853.000000
243 -324.384033 408.766998 853.000000
244 -323.128021 408.705994 900.000000

```
245 -321.873016 408.644012 853.000000
246 -320.618042 408.583008 849.000000
247 -319.363037 408.520996 845.000000
248 -318.108032 408.460999 853.000000
249 -316.853027 408.399994 841.000000
250 -334.335022 411.010986 842.000000
251 -333.080017 410.946991 810.000000
252 -331.826019 410.882996 803.000000
253 -330.571045 410.820007 825.000000
254 -329.316040 410.756989 814.000000
255 -328.061035 410.694000 807.000000
256 -326.807037 410.631989 846.000000
257 -325.552032 410.569000 852.000000
258 -324.298035 410.506989 853.000000
259 -323.043030 410.446014 853.000000
260 -321.788025 410.384003 853.000000
261 -320.533020 410.322998 853.000000
262 -319.279022 410.260986 911.000000
263 -318.024017 410.200989 853.000000
264 -334.246033 412.751007 847.000000
265 -332.992035 412.687012 792.000000
266 -331.738037 412.622986 792.000000
267 -330.483032 412.559998 803.000000
268 -329.229034 412.497009 794.000000
269 -327.975037 412.433990 796.000000
270 -326.720032 412.372009 828.000000
271 -325.466034 412.308990 851.000000
272 -324.212036 412.247009 853.000000
273 -322.957031 412.186005 853.000000
274 -321.703033 412.123993 853.000000
275 -320.448029 412.062988 914.000000
276 -319.194031 412.001007 924.000000
277 -332.904022 414.427002 809.000000
278 -331.650024 414.363007 792.000000
279 -330.396027 414.299988 792.000000
280 -329.142029 414.237000 792.000000
281 -327.888031 414.174011 792.000000
282 -326.634033 414.112000 841.000000
283 -325.380035 414.049011 853.000000
284 -324.126038 413.987000 853.000000
285 -322.871033 413.925995 869.000000
286 -330.308044 416.040009 796.000000
287 -329.055023 415.976990 829.000000
288 -327.801025 415.914001 853.000000
289 -326.547028 415.851990 860.000000

Surface Met Station UTMs (n,x,y):

 Control-file POINT Sources :  1
 EMARB-file POINT Sources   :  0
 Control-file AREA Sources  :  0
 EMARB-file AREA Sources    :  0
 Control-file LINE Sources  :  0
 EMARB-file LINE Sources    :  0
 Control-file VOLUME Sources:  0
 EMARB-file VOLUME Sources  :  0
```

```
 Source Names
INV2



**************    NOTICE    ***************
Gridded receptor range reset to NGX by NGY


 ---------------------------------------------------------------------
----------------------------------------------------------
          INPUT FILES

 Default Name     Unit No.     File Name and Path
 ------------     --------     ------------------
  CALPOST.INP         5        visib.inp
    MODEL.DAT         4        CONCPM.DAT


 ---------------------------------------------------------------------
----------------------------------------------------------
          OUTPUT FILES

 Default Name     Unit No.     File Name and Path
 ------------     --------     ------------------
  CALPOST.LST         8        06_ES1_POST\VISIB\VISIB.LST
       (TOPN)        11
06_ES1_POST\VISIB\RANK()_SPECIES_ttHR_CONC_V.DAT
      (VIS24)        11
06_ES1_POST\VISIB\DAILY_VISIB_VISIB.DAT_____________________________________
_____________________________________________________
  (Delta-VIS)        34        BF06_ES1J.DAT

*********************************************************************
**********************************************************
                                                CALPOST  Version 6.221
Level 080724
*********************************************************************
**********************************************************


                          VISIB  BOESNCFG

             TOP-50   24   HOUR AVERAGE   EXTINCTION   VALUES

STARTING                      BEXT   BEXT
YEAR DAY TIME RECEPTOR TYPE  BOESNCFG   BACKGND  %CHNG  DELTA DV  RH-
FAC   COORDINATES (km)

2006 330 0100 (  0, 166) D     16.460    15.776   4.341     0.425
0.000  -403.558   390.468
2006 330 0100 (  0, 146) D     16.455    15.776   4.306     0.422
0.000  -403.611   389.598
2006 330 0100 (  0, 165) D     16.426    15.776   4.124     0.404
0.000  -404.187   390.507
2006 330 0100 (  0, 145) D     16.423    15.776   4.104     0.402
```

```
0.000  -404.240   389.637
2006 330 0100 (  0, 126) D     16.416    15.776   4.063     0.398
0.000  -404.293   388.768
2006 330 0100 (  0, 107) D     16.410    15.776   4.022     0.394
0.000  -404.347   387.899
2006 330 0100 (  0, 184) D     16.390    15.776   3.896     0.382
0.000  -404.762   391.414
2006 330 0100 (  0, 164) D     16.388    15.776   3.880     0.381
0.000  -404.816   390.545
2006 330 0100 (  0, 144) D     16.385    15.776   3.862     0.379
0.000  -404.869   389.676
2006 330 0100 (  0, 125) D     16.382    15.776   3.841     0.377
0.000  -404.923   388.807
2006 330 0100 (  0, 106) D     16.379    15.776   3.825     0.375
0.000  -404.976   387.937
2006 330 0100 (  0, 183) D     16.345    15.776   3.612     0.355
0.000  -405.392   391.453
2006 330 0100 (  0, 163) D     16.345    15.776   3.608     0.354
0.000  -405.446   390.584
2006 330 0100 (  0, 143) D     16.344    15.776   3.602     0.354
0.000  -405.499   389.714
2006 330 0100 (  0, 124) D     16.342    15.776   3.588     0.353
0.000  -405.553   388.845
2006 330 0100 (  0, 105) D     16.341    15.776   3.584     0.352
0.000  -405.606   387.976
2006 330 0100 (  0,  88) D     16.340    15.776   3.576     0.351
0.000  -405.660   387.107
2006 330 0100 (  0,  71) D     16.338    15.776   3.563     0.350
0.000  -405.713   386.238
2006 330 0100 (  0,  57) D     16.335    15.776   3.549     0.349
0.000  -405.767   385.369
2006 330 0100 (  0, 142) D     16.301    15.776   3.330     0.328
0.000  -406.128   389.753
2006 330 0100 (  0, 162) D     16.301    15.776   3.329     0.328
0.000  -406.075   390.623
2006 330 0100 (  0, 104) D     16.301    15.776   3.329     0.328
0.000  -406.235   388.015
2006 330 0100 (  0, 123) D     16.301    15.776   3.328     0.327
0.000  -406.182   388.884
2006 330 0100 (  0, 182) D     16.300    15.776   3.326     0.327
0.000  -406.021   391.492
2006 330 0100 (  0,  56) D     16.300    15.776   3.321     0.327
0.000  -406.396   385.407
2006 330 0100 (  0,  87) D     16.300    15.776   3.321     0.327
0.000  -406.289   387.146
2006 330 0100 (  0,  70) D     16.298    15.776   3.315     0.326
0.000  -406.343   386.276
2006  38 0100 (  0, 186) D     16.298    15.694   3.855     0.378
0.000  -414.145   392.870
2006  38 0100 (  0, 185) D     16.298    15.694   3.850     0.378
0.000  -414.775   392.910
2006  38 0100 (  0, 187) D     16.296    15.694   3.840     0.377
0.000  -413.516   392.831
2006  38 0100 (  0, 188) D     16.291    15.694   3.805     0.373
0.000  -412.887   392.791
2006  38 0100 (  0, 189) D     16.282    15.694   3.752     0.368
0.000  -412.259   392.752
```

```
2006  38 0100 (  0, 168) D     16.280    15.694   3.738     0.367
0.000  -414.829   392.041
2006  38 0100 (  0, 169) D     16.280    15.694   3.734     0.367
0.000  -414.200   392.001
2006  38 0100 (  0, 167) D     16.278    15.694   3.725     0.366
0.000  -415.458   392.080
2006  38 0100 (  0, 170) D     16.276    15.694   3.712     0.364
0.000  -413.571   391.961
2006  38 0100 (  0, 171) D     16.270    15.694   3.670     0.360
0.000  -412.942   391.922
2006  38 0100 (  0, 148) D     16.262    15.694   3.623     0.356
0.000  -414.884   391.172
2006 330 0100 (  0,  55) D     16.261    15.776   3.080     0.303
0.000  -407.026   385.446
2006  38 0100 (  0, 147) D     16.260    15.694   3.612     0.355
0.000  -415.513   391.211
2006 330 0100 (  0,  69) D     16.260    15.776   3.073     0.303
0.000  -406.972   386.315
2006  38 0100 (  0, 149) D     16.260    15.694   3.612     0.355
0.000  -414.255   391.132
2006  38 0100 (  0, 172) D     16.260    15.694   3.610     0.355
0.000  -412.313   391.883
2006 330 0100 (  0,  86) D     16.260    15.776   3.071     0.302
0.000  -406.918   387.185
2006 330 0100 (  0, 103) D     16.259    15.776   3.063     0.302
0.000  -406.865   388.054
2006 330 0100 (  0, 122) D     16.258    15.776   3.060     0.301
0.000  -406.811   388.923
2006 330 0100 (  0, 141) D     16.258    15.776   3.058     0.301
0.000  -406.758   389.792
2006 330 0100 (  0, 161) D     16.257    15.776   3.052     0.301
0.000  -406.704   390.661
2006  38 0100 (  0, 150) D     16.256    15.694   3.583     0.352
0.000  -413.626   391.092
2006 330 0100 (  0, 181) D     16.256    15.776   3.043     0.300
0.000  -406.650   391.530

********************************************************************************
************************************************************
                                                  CALPOST  Version 6.221
Level 080724
********************************************************************************
************************************************************


                                                                  VISIB  BOESNCFG

 4 RANKED    24   HOUR AVERAGE   EXTINCTION   VALUES AT EACH DISCRETE
RECEPTOR  (YEAR,DAY,START TIME)   (1/Mega-m)

RECEPTOR     COORDINATES (km)             1 RANK                      2
RANK                      3 RANK                      4 RANK
      1     -416.171   380.781   1.6075E+01 (2006,038,0100)  1.6040E+01
(2006,135,0100)  1.6037E+01 (2006,329,0100)  1.5979E+01 (2006,134,0100)
      2     -415.541   380.742   1.6066E+01 (2006,038,0100)  1.6045E+01
(2006,135,0100)  1.6038E+01 (2006,329,0100)  1.5969E+01 (2006,039,0100)
      3     -414.911   380.702   1.6057E+01 (2006,038,0100)  1.6050E+01
```

(2006,135,0100) 1.6038E+01 (2006,329,0100) 1.5961E+01 (2006,039,0100)
      4   -417.376   381.730   1.6100E+01 (2006,038,0100) 1.6033E+01
(2006,329,0100) 1.6024E+01 (2006,135,0100) 1.6007E+01 (2006,134,0100)
      5   -416.746   381.690   1.6095E+01 (2006,038,0100) 1.6036E+01
(2006,329,0100) 1.6029E+01 (2006,135,0100) 1.5995E+01 (2006,134,0100)
      6   -416.116   381.651   1.6089E+01 (2006,038,0100) 1.6038E+01
(2006,329,0100) 1.6035E+01 (2006,135,0100) 1.5984E+01 (2006,134,0100)
      7   -415.486   381.611   1.6080E+01 (2006,038,0100) 1.6040E+01
(2006,135,0100) 1.6039E+01 (2006,329,0100) 1.5976E+01 (2006,039,0100)
      8   -414.856   381.571   1.6071E+01 (2006,038,0100) 1.6046E+01
(2006,135,0100) 1.6040E+01 (2006,329,0100) 1.5968E+01 (2006,039,0100)
      9   -414.226   381.532   1.6060E+01 (2006,038,0100) 1.6051E+01
(2006,135,0100) 1.6039E+01 (2006,329,0100) 1.5972E+01 (2006,330,0100)
     10   -413.596   381.492   1.6056E+01 (2006,135,0100) 1.6049E+01
(2006,038,0100) 1.6038E+01 (2006,329,0100) 1.5989E+01 (2006,330,0100)
     11   -417.321   382.599   1.6113E+01 (2006,038,0100) 1.6033E+01
(2006,329,0100) 1.6017E+01 (2006,135,0100) 1.6013E+01 (2006,134,0100)
     12   -416.691   382.559   1.6108E+01 (2006,038,0100) 1.6036E+01
(2006,329,0100) 1.6023E+01 (2006,135,0100) 1.6001E+01 (2006,134,0100)
     13   -416.062   382.520   1.6102E+01 (2006,038,0100) 1.6038E+01
(2006,329,0100) 1.6030E+01 (2006,135,0100) 1.5990E+01 (2006,134,0100)
     14   -415.432   382.480   1.6094E+01 (2006,038,0100) 1.6039E+01
(2006,329,0100) 1.6036E+01 (2006,135,0100) 1.5982E+01 (2006,039,0100)
     15   -414.801   382.440   1.6085E+01 (2006,038,0100) 1.6041E+01
(2006,135,0100) 1.6040E+01 (2006,329,0100) 1.5974E+01 (2006,039,0100)
     16   -414.171   382.401   1.6075E+01 (2006,038,0100) 1.6047E+01
(2006,135,0100) 1.6038E+01 (2006,329,0100) 1.5970E+01 (2006,330,0100)
     17   -413.541   382.361   1.6063E+01 (2006,038,0100) 1.6052E+01
(2006,135,0100) 1.6036E+01 (2006,329,0100) 1.5986E+01 (2006,330,0100)
     18   -412.912   382.322   1.6056E+01 (2006,135,0100) 1.6050E+01
(2006,038,0100) 1.6034E+01 (2006,329,0100) 1.6005E+01 (2006,330,0100)
     19   -412.281   382.282   1.6061E+01 (2006,135,0100) 1.6037E+01
(2006,038,0100) 1.6033E+01 (2006,329,0100) 1.6026E+01 (2006,330,0100)
     20   -417.266   383.469   1.6126E+01 (2006,038,0100) 1.6032E+01
(2006,329,0100) 1.6020E+01 (2006,134,0100) 1.6011E+01 (2006,135,0100)
     21   -416.637   383.429   1.6122E+01 (2006,038,0100) 1.6035E+01
(2006,329,0100) 1.6018E+01 (2006,135,0100) 1.6007E+01 (2006,134,0100)
     22   -416.007   383.389   1.6116E+01 (2006,038,0100) 1.6037E+01
(2006,329,0100) 1.6024E+01 (2006,135,0100) 1.5996E+01 (2006,134,0100)
     23   -415.377   383.349   1.6109E+01 (2006,038,0100) 1.6037E+01
(2006,329,0100) 1.6031E+01 (2006,135,0100) 1.5988E+01 (2006,039,0100)
     24   -414.747   383.310   1.6100E+01 (2006,038,0100) 1.6036E+01
(2006,135,0100) 1.6036E+01 (2006,329,0100) 1.5980E+01 (2006,039,0100)
     25   -414.117   383.270   1.6090E+01 (2006,038,0100) 1.6042E+01
(2006,135,0100) 1.6036E+01 (2006,329,0100) 1.5972E+01 (2006,039,0100)
     26   -413.487   383.230   1.6078E+01 (2006,038,0100) 1.6048E+01
(2006,135,0100) 1.6036E+01 (2006,329,0100) 1.5983E+01 (2006,330,0100)
     27   -412.857   383.191   1.6066E+01 (2006,038,0100) 1.6053E+01
(2006,135,0100) 1.6036E+01 (2006,329,0100) 1.6001E+01 (2006,330,0100)
     28   -412.227   383.152   1.6057E+01 (2006,135,0100) 1.6052E+01
(2006,038,0100) 1.6035E+01 (2006,329,0100) 1.6022E+01 (2006,330,0100)
     29   -416.582   384.298   1.6135E+01 (2006,038,0100) 1.6032E+01
(2006,329,0100) 1.6014E+01 (2006,134,0100) 1.6013E+01 (2006,135,0100)
     30   -415.952   384.258   1.6130E+01 (2006,038,0100) 1.6033E+01
(2006,329,0100) 1.6020E+01 (2006,135,0100) 1.6002E+01 (2006,134,0100)
     31   -415.322   384.218   1.6123E+01 (2006,038,0100) 1.6034E+01
(2006,329,0100) 1.6026E+01 (2006,135,0100) 1.5994E+01 (2006,039,0100)

```
     32     -414.692   384.178   1.6115E+01 (2006,038,0100)  1.6036E+01
(2006,329,0100)  1.6033E+01 (2006,135,0100)  1.5987E+01 (2006,039,0100)
     33     -414.062   384.139   1.6106E+01 (2006,038,0100)  1.6039E+01
(2006,135,0100)  1.6037E+01 (2006,329,0100)  1.5978E+01 (2006,039,0100)
     34     -413.432   384.099   1.6095E+01 (2006,038,0100)  1.6045E+01
(2006,135,0100)  1.6038E+01 (2006,329,0100)  1.5982E+01 (2006,330,0100)
     35     -412.803   384.060   1.6082E+01 (2006,038,0100)  1.6050E+01
(2006,135,0100)  1.6038E+01 (2006,329,0100)  1.5999E+01 (2006,330,0100)
     36     -412.172   384.020   1.6054E+01 (2006,135,0100)  1.6044E+01
(2006,038,0100)  1.6037E+01 (2006,329,0100)  1.6019E+01 (2006,330,0100)
     37     -415.897   385.127   1.6146E+01 (2006,038,0100)  1.6032E+01
(2006,329,0100)  1.6014E+01 (2006,135,0100)  1.6009E+01 (2006,134,0100)
     38     -415.267   385.087   1.6139E+01 (2006,038,0100)  1.6035E+01
(2006,329,0100)  1.6021E+01 (2006,135,0100)  1.6000E+01 (2006,039,0100)
     39     -414.637   385.048   1.6131E+01 (2006,038,0100)  1.6037E+01
(2006,329,0100)  1.6029E+01 (2006,135,0100)  1.5993E+01 (2006,039,0100)
     40     -414.008   385.008   1.6122E+01 (2006,038,0100)  1.6039E+01
(2006,329,0100)  1.6036E+01 (2006,135,0100)  1.5984E+01 (2006,039,0100)
     41     -413.378   384.969   1.6111E+01 (2006,038,0100)  1.6042E+01
(2006,135,0100)  1.6040E+01 (2006,329,0100)  1.5980E+01 (2006,330,0100)
     42     -412.748   384.929   1.6099E+01 (2006,038,0100)  1.6048E+01
(2006,135,0100)  1.6040E+01 (2006,329,0100)  1.5997E+01 (2006,330,0100)
     43     -412.118   384.890   1.6086E+01 (2006,038,0100)  1.6053E+01
(2006,135,0100)  1.6039E+01 (2006,329,0100)  1.6016E+01 (2006,330,0100)
     44     -415.842   385.996   1.6162E+01 (2006,038,0100)  1.6031E+01
(2006,329,0100)  1.6016E+01 (2006,134,0100)  1.6013E+01 (2006,039,0100)
     45     -415.213   385.957   1.6156E+01 (2006,038,0100)  1.6035E+01
(2006,329,0100)  1.6018E+01 (2006,135,0100)  1.6006E+01 (2006,039,0100)
     46     -414.583   385.917   1.6149E+01 (2006,038,0100)  1.6038E+01
(2006,329,0100)  1.6025E+01 (2006,135,0100)  1.5998E+01 (2006,039,0100)
     47     -413.953   385.878   1.6139E+01 (2006,038,0100)  1.6040E+01
(2006,329,0100)  1.6032E+01 (2006,135,0100)  1.5990E+01 (2006,039,0100)
     48     -413.323   385.838   1.6128E+01 (2006,038,0100)  1.6041E+01
(2006,329,0100)  1.6039E+01 (2006,135,0100)  1.5982E+01 (2006,039,0100)
     49     -412.694   385.799   1.6116E+01 (2006,038,0100)  1.6045E+01
(2006,135,0100)  1.6040E+01 (2006,329,0100)  1.5995E+01 (2006,330,0100)
     50     -412.064   385.759   1.6103E+01 (2006,038,0100)  1.6051E+01
(2006,135,0100)  1.6039E+01 (2006,329,0100)  1.6014E+01 (2006,330,0100)
     51     -409.545   385.602   1.6119E+01 (2006,330,0100)  1.6070E+01
(2006,135,0100)  1.6031E+01 (2006,329,0100)  1.6023E+01 (2006,038,0100)
     52     -408.915   385.563   1.6152E+01 (2006,330,0100)  1.6067E+01
(2006,135,0100)  1.6027E+01 (2006,329,0100)  1.6009E+01 (2006,137,0100)
     53     -408.286   385.524   1.6185E+01 (2006,330,0100)  1.6063E+01
(2006,135,0100)  1.6023E+01 (2006,329,0100)  1.6007E+01 (2006,321,0100)
     54     -407.655   385.485   1.6223E+01 (2006,330,0100)  1.6067E+01
(2006,135,0100)  1.6023E+01 (2006,329,0100)  1.6017E+01 (2006,321,0100)
     55     -407.026   385.446   1.6261E+01 (2006,330,0100)  1.6072E+01
(2006,135,0100)  1.6029E+01 (2006,321,0100)  1.6027E+01 (2006,137,0100)
     56     -406.396   385.407   1.6300E+01 (2006,330,0100)  1.6076E+01
(2006,135,0100)  1.6040E+01 (2006,321,0100)  1.6036E+01 (2006,137,0100)
     57     -405.767   385.369   1.6335E+01 (2006,330,0100)  1.6077E+01
(2006,135,0100)  1.6051E+01 (2006,321,0100)  1.6041E+01 (2006,133,0100)
     58     -415.787   386.865   1.6177E+01 (2006,038,0100)  1.6030E+01
(2006,329,0100)  1.6023E+01 (2006,134,0100)  1.6018E+01 (2006,039,0100)
     59     -415.158   386.826   1.6172E+01 (2006,038,0100)  1.6034E+01
(2006,329,0100)  1.6014E+01 (2006,135,0100)  1.6012E+01 (2006,039,0100)
     60     -414.528   386.786   1.6166E+01 (2006,038,0100)  1.6037E+01
```

(2006,329,0100) 1.6021E+01 (2006,135,0100) 1.6004E+01 (2006,039,0100)
     61   -413.898   386.746   1.6157E+01 (2006,038,0100) 1.6039E+01
(2006,329,0100) 1.6029E+01 (2006,135,0100) 1.5996E+01 (2006,039,0100)
     62   -413.269   386.707   1.6147E+01 (2006,038,0100) 1.6040E+01
(2006,329,0100) 1.6036E+01 (2006,135,0100) 1.5988E+01 (2006,039,0100)
     63   -412.639   386.668   1.6134E+01 (2006,038,0100) 1.6043E+01
(2006,135,0100) 1.6038E+01 (2006,329,0100) 1.5994E+01 (2006,330,0100)
     64   -412.009   386.628   1.6121E+01 (2006,038,0100) 1.6049E+01
(2006,135,0100) 1.6036E+01 (2006,329,0100) 1.6012E+01 (2006,330,0100)
     65   -409.491   386.471   1.6116E+01 (2006,330,0100) 1.6070E+01
(2006,135,0100) 1.6055E+01 (2006,038,0100) 1.6032E+01 (2006,329,0100)
     66   -408.861   386.432   1.6148E+01 (2006,330,0100) 1.6067E+01
(2006,135,0100) 1.6028E+01 (2006,329,0100) 1.6006E+01 (2006,137,0100)
     67   -408.232   386.393   1.6184E+01 (2006,330,0100) 1.6069E+01
(2006,135,0100) 1.6026E+01 (2006,329,0100) 1.6012E+01 (2006,137,0100)
     68   -407.602   386.354   1.6222E+01 (2006,330,0100) 1.6073E+01
(2006,135,0100) 1.6025E+01 (2006,329,0100) 1.6022E+01 (2006,137,0100)
     69   -406.972   386.315   1.6260E+01 (2006,330,0100) 1.6075E+01
(2006,135,0100) 1.6031E+01 (2006,137,0100) 1.6031E+01 (2006,321,0100)
     70   -406.343   386.276   1.6298E+01 (2006,330,0100) 1.6077E+01
(2006,135,0100) 1.6042E+01 (2006,321,0100) 1.6039E+01 (2006,133,0100)
     71   -405.713   386.238   1.6338E+01 (2006,330,0100) 1.6098E+01
(2006,275,0100) 1.6085E+01 (2006,135,0100) 1.6071E+01 (2006,133,0100)
     72   -415.733   387.735   1.6193E+01 (2006,038,0100) 1.6031E+01
(2006,134,0100) 1.6028E+01 (2006,329,0100) 1.6024E+01 (2006,039,0100)
     73   -415.103   387.695   1.6189E+01 (2006,038,0100) 1.6032E+01
(2006,329,0100) 1.6018E+01 (2006,134,0100) 1.6017E+01 (2006,039,0100)
     74   -414.473   387.655   1.6183E+01 (2006,038,0100) 1.6035E+01
(2006,329,0100) 1.6018E+01 (2006,135,0100) 1.6010E+01 (2006,039,0100)
     75   -413.844   387.616   1.6175E+01 (2006,038,0100) 1.6036E+01
(2006,329,0100) 1.6026E+01 (2006,135,0100) 1.6002E+01 (2006,039,0100)
     76   -413.214   387.576   1.6165E+01 (2006,038,0100) 1.6036E+01
(2006,329,0100) 1.6034E+01 (2006,135,0100) 1.5996E+01 (2006,361,0100)
     77   -412.585   387.537   1.6153E+01 (2006,038,0100) 1.6041E+01
(2006,135,0100) 1.6038E+01 (2006,329,0100) 1.5994E+01 (2006,330,0100)
     78   -411.955   387.497   1.6140E+01 (2006,038,0100) 1.6048E+01
(2006,135,0100) 1.6038E+01 (2006,329,0100) 1.6012E+01 (2006,330,0100)
     79   -411.326   387.458   1.6125E+01 (2006,038,0100) 1.6054E+01
(2006,135,0100) 1.6038E+01 (2006,329,0100) 1.6033E+01 (2006,330,0100)
     80   -410.696   387.419   1.6108E+01 (2006,038,0100) 1.6060E+01
(2006,135,0100) 1.6056E+01 (2006,330,0100) 1.6037E+01 (2006,329,0100)
     81   -410.066   387.380   1.6091E+01 (2006,038,0100) 1.6083E+01
(2006,330,0100) 1.6065E+01 (2006,135,0100) 1.6035E+01 (2006,329,0100)
     82   -409.437   387.341   1.6113E+01 (2006,330,0100) 1.6072E+01
(2006,038,0100) 1.6070E+01 (2006,135,0100) 1.6034E+01 (2006,329,0100)
     83   -408.807   387.301   1.6146E+01 (2006,330,0100) 1.6074E+01
(2006,135,0100) 1.6035E+01 (2006,038,0100) 1.6032E+01 (2006,329,0100)
     84   -408.178   387.262   1.6182E+01 (2006,330,0100) 1.6070E+01
(2006,135,0100) 1.6026E+01 (2006,329,0100) 1.6010E+01 (2006,137,0100)
     85   -407.548   387.223   1.6221E+01 (2006,330,0100) 1.6074E+01
(2006,135,0100) 1.6025E+01 (2006,329,0100) 1.6022E+01 (2006,133,0100)
     86   -406.918   387.185   1.6260E+01 (2006,330,0100) 1.6076E+01
(2006,135,0100) 1.6035E+01 (2006,133,0100) 1.6032E+01 (2006,321,0100)
     87   -406.289   387.146   1.6300E+01 (2006,330,0100) 1.6078E+01
(2006,135,0100) 1.6047E+01 (2006,133,0100) 1.6044E+01 (2006,321,0100)
     88   -405.660   387.107   1.6340E+01 (2006,330,0100) 1.6100E+01
(2006,275,0100) 1.6086E+01 (2006,135,0100) 1.6081E+01 (2006,133,0100)

```
     89     -415.678   388.604   1.6209E+01 (2006,038,0100)  1.6039E+01
(2006,134,0100)  1.6030E+01 (2006,039,0100)  1.6024E+01 (2006,329,0100)
     90     -415.048   388.564   1.6206E+01 (2006,038,0100)  1.6028E+01
(2006,329,0100)  1.6026E+01 (2006,134,0100)  1.6023E+01 (2006,039,0100)
     91     -414.419   388.524   1.6201E+01 (2006,038,0100)  1.6031E+01
(2006,329,0100)  1.6016E+01 (2006,135,0100)  1.6016E+01 (2006,039,0100)
     92     -413.789   388.485   1.6193E+01 (2006,038,0100)  1.6034E+01
(2006,329,0100)  1.6024E+01 (2006,135,0100)  1.6009E+01 (2006,361,0100)
     93     -413.160   388.445   1.6184E+01 (2006,038,0100)  1.6037E+01
(2006,329,0100)  1.6032E+01 (2006,135,0100)  1.6007E+01 (2006,361,0100)
     94     -412.531   388.406   1.6172E+01 (2006,038,0100)  1.6040E+01
(2006,135,0100)  1.6039E+01 (2006,329,0100)  1.6005E+01 (2006,361,0100)
     95     -411.901   388.366   1.6159E+01 (2006,038,0100)  1.6047E+01
(2006,135,0100)  1.6040E+01 (2006,329,0100)  1.6012E+01 (2006,330,0100)
     96     -411.271   388.327   1.6144E+01 (2006,038,0100)  1.6053E+01
(2006,135,0100)  1.6039E+01 (2006,329,0100)  1.6032E+01 (2006,330,0100)
     97     -410.642   388.288   1.6128E+01 (2006,038,0100)  1.6059E+01
(2006,135,0100)  1.6055E+01 (2006,330,0100)  1.6038E+01 (2006,329,0100)
     98     -410.012   388.249   1.6110E+01 (2006,038,0100)  1.6081E+01
(2006,330,0100)  1.6065E+01 (2006,135,0100)  1.6036E+01 (2006,329,0100)
     99     -409.383   388.210   1.6111E+01 (2006,330,0100)  1.6091E+01
(2006,038,0100)  1.6070E+01 (2006,135,0100)  1.6033E+01 (2006,329,0100)
    100     -408.753   388.170   1.6144E+01 (2006,330,0100)  1.6075E+01
(2006,135,0100)  1.6067E+01 (2006,038,0100)  1.6033E+01 (2006,064,0100)
    101     -408.124   388.131   1.6180E+01 (2006,330,0100)  1.6071E+01
(2006,135,0100)  1.6027E+01 (2006,329,0100)  1.6024E+01 (2006,064,0100)
    102     -407.494   388.092   1.6218E+01 (2006,330,0100)  1.6074E+01
(2006,135,0100)  1.6028E+01 (2006,133,0100)  1.6027E+01 (2006,329,0100)
    103     -406.865   388.054   1.6259E+01 (2006,330,0100)  1.6077E+01
(2006,135,0100)  1.6042E+01 (2006,133,0100)  1.6033E+01 (2006,321,0100)
    104     -406.235   388.015   1.6301E+01 (2006,330,0100)  1.6086E+01
(2006,135,0100)  1.6077E+01 (2006,133,0100)  1.6052E+01 (2006,275,0100)
    105     -405.606   387.976   1.6341E+01 (2006,330,0100)  1.6101E+01
(2006,275,0100)  1.6092E+01 (2006,133,0100)  1.6087E+01 (2006,135,0100)
    106     -404.976   387.937   1.6379E+01 (2006,330,0100)  1.6124E+01
(2006,275,0100)  1.6099E+01 (2006,133,0100)  1.6088E+01 (2006,135,0100)
    107     -404.347   387.899   1.6410E+01 (2006,330,0100)  1.6096E+01
(2006,275,0100)  1.6088E+01 (2006,133,0100)  1.6085E+01 (2006,321,0100)
    108     -415.623   389.473   1.6225E+01 (2006,038,0100)  1.6046E+01
(2006,134,0100)  1.6035E+01 (2006,039,0100)  1.6021E+01 (2006,361,0100)
    109     -414.994   389.433   1.6223E+01 (2006,038,0100)  1.6033E+01
(2006,134,0100)  1.6029E+01 (2006,039,0100)  1.6025E+01 (2006,329,0100)
    110     -414.364   389.394   1.6219E+01 (2006,038,0100)  1.6030E+01
(2006,329,0100)  1.6022E+01 (2006,039,0100)  1.6021E+01 (2006,361,0100)
    111     -413.735   389.354   1.6213E+01 (2006,038,0100)  1.6034E+01
(2006,329,0100)  1.6023E+01 (2006,135,0100)  1.6020E+01 (2006,361,0100)
    112     -413.105   389.315   1.6204E+01 (2006,038,0100)  1.6037E+01
(2006,329,0100)  1.6032E+01 (2006,135,0100)  1.6019E+01 (2006,361,0100)
    113     -412.476   389.275   1.6193E+01 (2006,038,0100)  1.6040E+01
(2006,135,0100)  1.6039E+01 (2006,329,0100)  1.6017E+01 (2006,361,0100)
    114     -411.846   389.236   1.6180E+01 (2006,038,0100)  1.6047E+01
(2006,135,0100)  1.6040E+01 (2006,329,0100)  1.6014E+01 (2006,361,0100)
    115     -411.217   389.197   1.6166E+01 (2006,038,0100)  1.6054E+01
(2006,135,0100)  1.6039E+01 (2006,329,0100)  1.6032E+01 (2006,330,0100)
    116     -410.588   389.157   1.6149E+01 (2006,038,0100)  1.6061E+01
(2006,135,0100)  1.6054E+01 (2006,330,0100)  1.6037E+01 (2006,064,0100)
    117     -409.958   389.118   1.6131E+01 (2006,038,0100)  1.6080E+01
```

(2006,330,0100) 1.6067E+01 (2006,135,0100) 1.6046E+01 (2006,064,0100)
    118   -409.329   389.079   1.6110E+01 (2006,038,0100) 1.6109E+01
(2006,330,0100) 1.6072E+01 (2006,135,0100) 1.6053E+01 (2006,064,0100)
    119   -408.700   389.040   1.6142E+01 (2006,330,0100) 1.6089E+01
(2006,038,0100) 1.6076E+01 (2006,135,0100) 1.6058E+01 (2006,064,0100)
    120   -408.070   389.001   1.6178E+01 (2006,330,0100) 1.6079E+01
(2006,135,0100) 1.6055E+01 (2006,064,0100) 1.6039E+01 (2006,038,0100)
    121   -407.440   388.962   1.6217E+01 (2006,330,0100) 1.6075E+01
(2006,135,0100) 1.6049E+01 (2006,064,0100) 1.6033E+01 (2006,133,0100)
    122   -406.811   388.923   1.6258E+01 (2006,330,0100) 1.6080E+01
(2006,135,0100) 1.6051E+01 (2006,133,0100) 1.6049E+01 (2006,064,0100)
    123   -406.182   388.884   1.6301E+01 (2006,330,0100) 1.6087E+01
(2006,135,0100) 1.6085E+01 (2006,133,0100) 1.6056E+01 (2006,064,0100)
    124   -405.553   388.845   1.6342E+01 (2006,330,0100) 1.6084E+01
(2006,135,0100) 1.6081E+01 (2006,133,0100) 1.6059E+01 (2006,321,0100)
    125   -404.923   388.807   1.6382E+01 (2006,330,0100) 1.6096E+01
(2006,133,0100) 1.6085E+01 (2006,135,0100) 1.6083E+01 (2006,275,0100)
    126   -404.293   388.768   1.6416E+01 (2006,330,0100) 1.6112E+01
(2006,275,0100) 1.6103E+01 (2006,133,0100) 1.6087E+01 (2006,321,0100)
    127   -415.568   390.342   1.6243E+01 (2006,038,0100) 1.6053E+01
(2006,134,0100) 1.6040E+01 (2006,039,0100) 1.6030E+01 (2006,361,0100)
    128   -414.939   390.302   1.6242E+01 (2006,038,0100) 1.6041E+01
(2006,134,0100) 1.6034E+01 (2006,039,0100) 1.6031E+01 (2006,361,0100)
    129   -414.309   390.263   1.6240E+01 (2006,038,0100) 1.6032E+01
(2006,361,0100) 1.6028E+01 (2006,134,0100) 1.6028E+01 (2006,039,0100)
    130   -413.680   390.223   1.6234E+01 (2006,038,0100) 1.6032E+01
(2006,329,0100) 1.6031E+01 (2006,361,0100) 1.6024E+01 (2006,135,0100)
    131   -413.051   390.184   1.6226E+01 (2006,038,0100) 1.6035E+01
(2006,329,0100) 1.6032E+01 (2006,135,0100) 1.6030E+01 (2006,361,0100)
    132   -412.422   390.144   1.6216E+01 (2006,038,0100) 1.6040E+01
(2006,135,0100) 1.6037E+01 (2006,329,0100) 1.6029E+01 (2006,361,0100)
    133   -411.792   390.105   1.6203E+01 (2006,038,0100) 1.6048E+01
(2006,135,0100) 1.6037E+01 (2006,329,0100) 1.6035E+01 (2006,064,0100)
    134   -411.163   390.065   1.6188E+01 (2006,038,0100) 1.6055E+01
(2006,135,0100) 1.6049E+01 (2006,064,0100) 1.6035E+01 (2006,329,0100)
    135   -410.534   390.026   1.6171E+01 (2006,038,0100) 1.6062E+01
(2006,135,0100) 1.6061E+01 (2006,064,0100) 1.6054E+01 (2006,330,0100)
    136   -409.904   389.987   1.6152E+01 (2006,038,0100) 1.6080E+01
(2006,330,0100) 1.6072E+01 (2006,064,0100) 1.6069E+01 (2006,135,0100)
    137   -409.275   389.948   1.6131E+01 (2006,038,0100) 1.6108E+01
(2006,330,0100) 1.6080E+01 (2006,064,0100) 1.6074E+01 (2006,135,0100)
    138   -408.646   389.909   1.6141E+01 (2006,330,0100) 1.6109E+01
(2006,038,0100) 1.6086E+01 (2006,064,0100) 1.6080E+01 (2006,135,0100)
    139   -408.016   389.870   1.6177E+01 (2006,330,0100) 1.6090E+01
(2006,064,0100) 1.6086E+01 (2006,038,0100) 1.6084E+01 (2006,135,0100)
    140   -407.387   389.831   1.6216E+01 (2006,330,0100) 1.6092E+01
(2006,064,0100) 1.6087E+01 (2006,135,0100) 1.6058E+01 (2006,038,0100)
    141   -406.758   389.792   1.6258E+01 (2006,330,0100) 1.6091E+01
(2006,064,0100) 1.6090E+01 (2006,135,0100) 1.6075E+01 (2006,133,0100)
    142   -406.128   389.753   1.6301E+01 (2006,330,0100) 1.6093E+01
(2006,133,0100) 1.6092E+01 (2006,135,0100) 1.6087E+01 (2006,064,0100)
    143   -405.499   389.714   1.6344E+01 (2006,330,0100) 1.6111E+01
(2006,133,0100) 1.6099E+01 (2006,275,0100) 1.6094E+01 (2006,135,0100)
    144   -404.869   389.676   1.6385E+01 (2006,330,0100) 1.6152E+01
(2006,275,0100) 1.6127E+01 (2006,133,0100) 1.6094E+01 (2006,135,0100)
    145   -404.240   389.637   1.6423E+01 (2006,330,0100) 1.6139E+01
(2006,275,0100) 1.6121E+01 (2006,133,0100) 1.6091E+01 (2006,135,0100)

```
    146     -403.611   389.598   1.6455E+01 (2006,330,0100)  1.6158E+01
(2006,275,0100)  1.6125E+01 (2006,133,0100)  1.6105E+01 (2006,321,0100)
    147     -415.513   391.211   1.6260E+01 (2006,038,0100)  1.6061E+01
(2006,134,0100)  1.6045E+01 (2006,039,0100)  1.6039E+01 (2006,361,0100)
    148     -414.884   391.172   1.6262E+01 (2006,038,0100)  1.6048E+01
(2006,134,0100)  1.6041E+01 (2006,361,0100)  1.6040E+01 (2006,039,0100)
    149     -414.255   391.132   1.6260E+01 (2006,038,0100)  1.6042E+01
(2006,361,0100)  1.6036E+01 (2006,134,0100)  1.6034E+01 (2006,039,0100)
    150     -413.626   391.092   1.6256E+01 (2006,038,0100)  1.6043E+01
(2006,361,0100)  1.6028E+01 (2006,329,0100)  1.6027E+01 (2006,039,0100)
    151     -412.996   391.053   1.6249E+01 (2006,038,0100)  1.6044E+01
(2006,361,0100)  1.6034E+01 (2006,135,0100)  1.6031E+01 (2006,329,0100)
    152     -412.367   391.014   1.6239E+01 (2006,038,0100)  1.6043E+01
(2006,361,0100)  1.6042E+01 (2006,135,0100)  1.6041E+01 (2006,064,0100)
    153     -411.738   390.974   1.6226E+01 (2006,038,0100)  1.6057E+01
(2006,064,0100)  1.6050E+01 (2006,135,0100)  1.6042E+01 (2006,361,0100)
    154     -411.109   390.935   1.6211E+01 (2006,038,0100)  1.6074E+01
(2006,064,0100)  1.6057E+01 (2006,135,0100)  1.6040E+01 (2006,361,0100)
    155     -410.480   390.896   1.6193E+01 (2006,038,0100)  1.6087E+01
(2006,064,0100)  1.6065E+01 (2006,135,0100)  1.6055E+01 (2006,330,0100)
    156     -409.850   390.856   1.6173E+01 (2006,038,0100)  1.6100E+01
(2006,064,0100)  1.6080E+01 (2006,330,0100)  1.6071E+01 (2006,135,0100)
    157     -409.221   390.817   1.6151E+01 (2006,038,0100)  1.6110E+01
(2006,064,0100)  1.6108E+01 (2006,330,0100)  1.6077E+01 (2006,135,0100)
    158     -408.592   390.778   1.6140E+01 (2006,330,0100)  1.6128E+01
(2006,038,0100)  1.6118E+01 (2006,064,0100)  1.6082E+01 (2006,135,0100)
    159     -407.963   390.739   1.6176E+01 (2006,330,0100)  1.6123E+01
(2006,064,0100)  1.6103E+01 (2006,038,0100)  1.6086E+01 (2006,135,0100)
    160     -407.333   390.700   1.6215E+01 (2006,330,0100)  1.6125E+01
(2006,064,0100)  1.6090E+01 (2006,135,0100)  1.6079E+01 (2006,038,0100)
    161     -406.704   390.661   1.6257E+01 (2006,330,0100)  1.6124E+01
(2006,064,0100)  1.6093E+01 (2006,135,0100)  1.6082E+01 (2006,133,0100)
    162     -406.075   390.623   1.6301E+01 (2006,330,0100)  1.6120E+01
(2006,064,0100)  1.6102E+01 (2006,133,0100)  1.6095E+01 (2006,135,0100)
    163     -405.446   390.584   1.6345E+01 (2006,330,0100)  1.6119E+01
(2006,133,0100)  1.6113E+01 (2006,064,0100)  1.6098E+01 (2006,275,0100)
    164     -404.816   390.545   1.6388E+01 (2006,330,0100)  1.6128E+01
(2006,133,0100)  1.6125E+01 (2006,275,0100)  1.6102E+01 (2006,064,0100)
    165     -404.187   390.507   1.6426E+01 (2006,330,0100)  1.6122E+01
(2006,133,0100)  1.6119E+01 (2006,275,0100)  1.6090E+01 (2006,321,0100)
    166     -403.558   390.468   1.6460E+01 (2006,330,0100)  1.6153E+01
(2006,275,0100)  1.6132E+01 (2006,133,0100)  1.6106E+01 (2006,321,0100)
    167     -415.458   392.080   1.6278E+01 (2006,038,0100)  1.6069E+01
(2006,134,0100)  1.6049E+01 (2006,039,0100)  1.6048E+01 (2006,361,0100)
    168     -414.829   392.041   1.6280E+01 (2006,038,0100)  1.6056E+01
(2006,134,0100)  1.6052E+01 (2006,361,0100)  1.6045E+01 (2006,039,0100)
    169     -414.200   392.001   1.6280E+01 (2006,038,0100)  1.6055E+01
(2006,361,0100)  1.6043E+01 (2006,134,0100)  1.6039E+01 (2006,039,0100)
    170     -413.571   391.961   1.6276E+01 (2006,038,0100)  1.6057E+01
(2006,361,0100)  1.6033E+01 (2006,039,0100)  1.6031E+01 (2006,134,0100)
    171     -412.942   391.922   1.6270E+01 (2006,038,0100)  1.6058E+01
(2006,361,0100)  1.6042E+01 (2006,064,0100)  1.6037E+01 (2006,135,0100)
    172     -412.313   391.883   1.6260E+01 (2006,038,0100)  1.6063E+01
(2006,064,0100)  1.6058E+01 (2006,361,0100)  1.6045E+01 (2006,135,0100)
    173     -411.683   391.843   1.6248E+01 (2006,038,0100)  1.6082E+01
(2006,064,0100)  1.6057E+01 (2006,361,0100)  1.6053E+01 (2006,135,0100)
    174     -411.054   391.804   1.6233E+01 (2006,038,0100)  1.6100E+01
```

```
(2006,064,0100)  1.6061E+01 (2006,135,0100)  1.6056E+01 (2006,361,0100)
    175     -410.425   391.765   1.6215E+01 (2006,038,0100)  1.6116E+01
(2006,064,0100)  1.6068E+01 (2006,135,0100)  1.6056E+01 (2006,330,0100)
    176     -409.796   391.725   1.6195E+01 (2006,038,0100)  1.6131E+01
(2006,064,0100)  1.6080E+01 (2006,330,0100)  1.6074E+01 (2006,135,0100)
    177     -409.167   391.686   1.6172E+01 (2006,038,0100)  1.6143E+01
(2006,064,0100)  1.6108E+01 (2006,330,0100)  1.6080E+01 (2006,135,0100)
    178     -408.538   391.647   1.6152E+01 (2006,064,0100)  1.6148E+01
(2006,038,0100)  1.6139E+01 (2006,330,0100)  1.6085E+01 (2006,135,0100)
    179     -407.909   391.608   1.6174E+01 (2006,330,0100)  1.6158E+01
(2006,064,0100)  1.6123E+01 (2006,038,0100)  1.6090E+01 (2006,135,0100)
    180     -407.279   391.569   1.6213E+01 (2006,330,0100)  1.6161E+01
(2006,064,0100)  1.6096E+01 (2006,038,0100)  1.6094E+01 (2006,135,0100)
    181     -406.650   391.530   1.6256E+01 (2006,330,0100)  1.6161E+01
(2006,064,0100)  1.6096E+01 (2006,135,0100)  1.6090E+01 (2006,133,0100)
    182     -406.021   391.492   1.6300E+01 (2006,330,0100)  1.6158E+01
(2006,064,0100)  1.6107E+01 (2006,133,0100)  1.6099E+01 (2006,135,0100)
    183     -405.392   391.453   1.6345E+01 (2006,330,0100)  1.6151E+01
(2006,064,0100)  1.6126E+01 (2006,133,0100)  1.6100E+01 (2006,135,0100)
    184     -404.762   391.414   1.6390E+01 (2006,330,0100)  1.6130E+01
(2006,064,0100)  1.6126E+01 (2006,133,0100)  1.6098E+01 (2006,135,0100)
    185     -414.775   392.910   1.6298E+01 (2006,038,0100)  1.6064E+01
(2006,134,0100)  1.6063E+01 (2006,361,0100)  1.6049E+01 (2006,039,0100)
    186     -414.145   392.870   1.6298E+01 (2006,038,0100)  1.6067E+01
(2006,361,0100)  1.6051E+01 (2006,134,0100)  1.6044E+01 (2006,039,0100)
    187     -413.516   392.831   1.6296E+01 (2006,038,0100)  1.6070E+01
(2006,361,0100)  1.6039E+01 (2006,134,0100)  1.6038E+01 (2006,064,0100)
    188     -412.887   392.791   1.6291E+01 (2006,038,0100)  1.6072E+01
(2006,361,0100)  1.6061E+01 (2006,064,0100)  1.6042E+01 (2006,135,0100)
    189     -412.259   392.752   1.6282E+01 (2006,038,0100)  1.6083E+01
(2006,064,0100)  1.6073E+01 (2006,361,0100)  1.6050E+01 (2006,135,0100)

***********************************************************************
************************************************************
                                              CALPOST  Version 6.221
Level 080724
***********************************************************************
************************************************************


                                                        24HR VISIBILITY


                                                        VISIB  BOESNCFG


                                                          (1/Mega-m)


START TIME
Modeled Extinction by Species                    Small Large SSalt
YEAR DAY HR  RECEPTOR    COORDINATES (km)  TYPE BEXT(Model) BEXT(BKG)
BEXT(Total) %CHANGE  bxSO4  bxNO3   bxOC   bxEC  bxPMC  bxPMF  bxNO2
F(RH) F(RH) F(RH)
2006   1  1   146       -403.611   389.598   D      0.173     15.694
15.868     1.10   0.125  0.037  0.002  0.000  0.000  0.001  0.008
2.810 2.230 3.250
```

```
2006   2  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006   3  1   166       -403.558   390.468   D      0.020     15.694
15.714     0.13   0.006  0.013  0.000  0.000  0.000  0.000  0.001
2.810 2.230 3.250
2006   4  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006   5  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006   6  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006   7  1   146       -403.611   389.598   D      0.099     15.694
15.794     0.63   0.031  0.056  0.002  0.000  0.000  0.001  0.008
2.810 2.230 3.250
2006   8  1   146       -403.611   389.598   D      0.107     15.694
15.802     0.68   0.040  0.041  0.003  0.001  0.001  0.002  0.019
2.810 2.230 3.250
2006   9  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006  10  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006  11  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006  12  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006  13  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006  14  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006  15  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006  16  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006  17  1   166       -403.558   390.468   D      0.030     15.694
15.725     0.19   0.010  0.014  0.001  0.000  0.000  0.000  0.005
2.810 2.230 3.250
2006  18  1   184       -404.762   391.414   D      0.185     15.694
15.880     1.18   0.069  0.079  0.005  0.001  0.001  0.003  0.027
2.810 2.230 3.250
2006  19  1   146       -403.611   389.598   D      0.002     15.694
15.696     0.01   0.001  0.001  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006  20  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
```

```
2006  21  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006  22  1   166       -403.558   390.468   D      0.105     15.694
15.800     0.67   0.032  0.057  0.002  0.001  0.001  0.001  0.012
2.810 2.230 3.250
2006  23  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006  24  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006  25  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006  26  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006  27  1   166       -403.558   390.468   D      0.002     15.694
15.696     0.01   0.000  0.001  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006  28  1   166       -403.558   390.468   D      0.003     15.694
15.697     0.02   0.001  0.002  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006  29  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006  30  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006  31  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.230 3.250
2006  32  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.220 3.200
2006  33  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.220 3.200
2006  34  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.220 3.200
2006  35  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.220 3.200
2006  36  1   146       -403.611   389.598   D      0.041     15.694
15.735     0.26   0.015  0.017  0.001  0.000  0.000  0.001  0.006
2.810 2.220 3.200
2006  37  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.220 3.200
2006  38  1   186       -414.145   392.870   D      0.605     15.694
16.298     3.85   0.166  0.359  0.011  0.003  0.003  0.006  0.056
2.810 2.220 3.200
2006  39  1   167       -415.458   392.080   D      0.356     15.694
16.049     2.27   0.077  0.254  0.004  0.001  0.001  0.002  0.016
2.810 2.220 3.200
```

```
2006  40  1   166       -403.558   390.468   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.220 3.200
2006  41  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.220 3.200
2006  42  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.220 3.200
2006  43  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.220 3.200
2006  44  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.220 3.200
2006  45  1   146       -403.611   389.598   D      0.091     15.694
15.784     0.58   0.037  0.040  0.002  0.000  0.000  0.001  0.009
2.810 2.220 3.200
2006  46  1   146       -403.611   389.598   D      0.082     15.694
15.776     0.53   0.035  0.035  0.002  0.000  0.001  0.001  0.009
2.810 2.220 3.200
2006  47  1   178       -408.538   391.647   D      0.062     15.694
15.756     0.40   0.022  0.027  0.002  0.000  0.000  0.001  0.010
2.810 2.220 3.200
2006  48  1    57       -405.767   385.369   D      0.030     15.694
15.724     0.19   0.010  0.019  0.000  0.000  0.000  0.000  0.001
2.810 2.220 3.200
2006  49  1   166       -403.558   390.468   D      0.024     15.694
15.717     0.15   0.008  0.016  0.000  0.000  0.000  0.000  0.000
2.810 2.220 3.200
2006  50  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.220 3.200
2006  51  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.220 3.200
2006  52  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.220 3.200
2006  53  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.220 3.200
2006  54  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.220 3.200
2006  55  1   166       -403.558   390.468   D      0.102     15.694
15.796     0.65   0.035  0.044  0.003  0.001  0.001  0.002  0.017
2.810 2.220 3.200
2006  56  1   166       -403.558   390.468   D      0.026     15.694
15.720     0.17   0.006  0.018  0.000  0.000  0.000  0.000  0.002
2.810 2.220 3.200
2006  57  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.220 3.200
2006  58  1   166       -403.558   390.468   D      0.001     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.220 3.200
```

```
2006  59  1     1       -416.171   380.781   D      0.000     15.694
15.694     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.220 3.200
2006  60  1     1       -416.171   380.781   D      0.000     15.717
15.717     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  61  1   146       -403.611   389.598   D      0.259     15.717
15.977     1.65   0.084  0.165  0.003  0.001  0.001  0.002  0.004
2.860 2.220 3.130
2006  62  1     1       -416.171   380.781   D      0.000     15.717
15.717     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  63  1   166       -403.558   390.468   D      0.002     15.717
15.720     0.01   0.001  0.001  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  64  1   180       -407.279   391.569   D      0.444     15.717
16.161     2.82   0.119  0.268  0.008  0.002  0.002  0.004  0.041
2.860 2.220 3.130
2006  65  1   189       -412.259   392.752   D      0.028     15.717
15.745     0.18   0.006  0.020  0.000  0.000  0.000  0.000  0.001
2.860 2.220 3.130
2006  66  1     1       -416.171   380.781   D      0.000     15.717
15.717     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  67  1     1       -416.171   380.781   D      0.000     15.717
15.717     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  68  1     1       -416.171   380.781   D      0.000     15.717
15.717     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  69  1   189       -412.259   392.752   D      0.173     15.717
15.891     1.10   0.050  0.104  0.003  0.001  0.001  0.002  0.013
2.860 2.220 3.130
2006  70  1     3       -414.911   380.702   D      0.000     15.717
15.718     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  71  1   187       -413.516   392.831   D      0.069     15.717
15.787     0.44   0.028  0.029  0.002  0.000  0.000  0.001  0.009
2.860 2.220 3.130
2006  72  1    57       -405.767   385.369   D      0.007     15.717
15.724     0.04   0.003  0.003  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  73  1     1       -416.171   380.781   D      0.000     15.717
15.717     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  74  1   167       -415.458   392.080   D      0.087     15.717
15.804     0.55   0.031  0.045  0.001  0.000  0.000  0.001  0.008
2.860 2.220 3.130
2006  75  1   146       -403.611   389.598   D      0.076     15.717
15.793     0.48   0.029  0.041  0.001  0.000  0.000  0.001  0.003
2.860 2.220 3.130
2006  76  1    89       -415.678   388.604   D      0.000     15.717
15.717     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  77  1     1       -416.171   380.781   D      0.000     15.717
15.717     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
```

```
2006  78  1     1       -416.171   380.781   D      0.000     15.717
15.717     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  79  1     1       -416.171   380.781   D      0.000     15.717
15.717     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  80  1     1       -416.171   380.781   D      0.000     15.717
15.717     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  81  1     1       -416.171   380.781   D      0.000     15.717
15.717     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  82  1   166       -403.558   390.468   D      0.046     15.717
15.764     0.30   0.015  0.030  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  83  1   166       -403.558   390.468   D      0.174     15.717
15.891     1.11   0.080  0.092  0.001  0.000  0.000  0.000  0.001
2.860 2.220 3.130
2006  84  1   184       -404.762   391.414   D      0.000     15.717
15.718     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  85  1     1       -416.171   380.781   D      0.000     15.717
15.717     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  86  1   166       -403.558   390.468   D      0.000     15.717
15.718     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  87  1     1       -416.171   380.781   D      0.000     15.717
15.717     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  88  1     1       -416.171   380.781   D      0.000     15.717
15.717     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  89  1   165       -404.187   390.507   D      0.000     15.717
15.717     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  90  1   166       -403.558   390.468   D      0.007     15.717
15.724     0.04   0.003  0.003  0.000  0.000  0.000  0.000  0.000
2.860 2.220 3.130
2006  91  1   166       -403.558   390.468   D      0.000     15.695
15.695     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006  92  1   166       -403.558   390.468   D      0.003     15.695
15.698     0.02   0.001  0.002  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006  93  1     1       -416.171   380.781   D      0.000     15.695
15.695     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006  94  1     1       -416.171   380.781   D      0.000     15.695
15.695     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006  95  1     1       -416.171   380.781   D      0.000     15.695
15.695     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006  96  1   146       -403.611   389.598   D      0.006     15.695
15.701     0.04   0.001  0.004  0.000  0.000  0.000  0.000  0.001
2.820 2.180 3.010
```

```
2006  97  1   189       -412.259   392.752   D      0.108     15.695
15.804     0.69   0.024  0.082  0.001  0.000  0.000  0.001  0.001
2.820 2.180 3.010
2006  98  1   185       -414.775   392.910   D      0.002     15.695
15.697     0.02   0.001  0.002  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006  99  1   166       -403.558   390.468   D      0.001     15.695
15.696     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006 100  1     1       -416.171   380.781   D      0.000     15.695
15.695     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006 101  1     1       -416.171   380.781   D      0.000     15.695
15.695     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006 102  1     1       -416.171   380.781   D      0.000     15.695
15.695     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006 103  1     1       -416.171   380.781   D      0.000     15.695
15.695     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006 104  1     1       -416.171   380.781   D      0.000     15.695
15.695     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006 105  1   180       -407.279   391.569   D      0.042     15.695
15.737     0.27   0.025  0.008  0.002  0.000  0.000  0.001  0.006
2.820 2.180 3.010
2006 106  1   166       -403.558   390.468   D      0.012     15.695
15.707     0.08   0.009  0.002  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006 107  1   166       -403.558   390.468   D      0.003     15.695
15.699     0.02   0.001  0.002  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006 108  1     1       -416.171   380.781   D      0.000     15.695
15.695     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006 109  1     1       -416.171   380.781   D      0.000     15.695
15.695     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006 110  1   146       -403.611   389.598   D      0.011     15.695
15.706     0.07   0.004  0.004  0.000  0.000  0.000  0.000  0.002
2.820 2.180 3.010
2006 111  1   166       -403.558   390.468   D      0.008     15.695
15.703     0.05   0.005  0.003  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006 112  1   166       -403.558   390.468   D      0.000     15.695
15.695     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006 113  1   167       -415.458   392.080   D      0.022     15.695
15.717     0.14   0.012  0.010  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006 114  1   177       -409.167   391.686   D      0.175     15.695
15.870     1.12   0.071  0.078  0.004  0.001  0.001  0.002  0.019
2.820 2.180 3.010
2006 115  1   167       -415.458   392.080   D      0.147     15.695
15.843     0.94   0.045  0.079  0.003  0.001  0.001  0.002  0.017
2.820 2.180 3.010
```

```
2006 116  1   184       -404.762   391.414   D      0.001     15.695
15.696     0.01   0.001  0.001  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006 117  1   166       -403.558   390.468   D      0.006     15.695
15.701     0.04   0.004  0.002  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006 118  1     1       -416.171   380.781   D      0.000     15.695
15.695     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.820 2.180 3.010
2006 119  1   146       -403.611   389.598   D      0.078     15.695
15.774     0.50   0.032  0.035  0.002  0.000  0.000  0.001  0.008
2.820 2.180 3.010
2006 120  1   178       -408.538   391.647   D      0.140     15.695
15.835     0.89   0.056  0.069  0.003  0.001  0.001  0.002  0.009
2.820 2.180 3.010
2006 121  1     1       -416.171   380.781   D      0.000     15.820
15.820     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
3.060 2.320 3.220
2006 122  1     1       -416.171   380.781   D      0.000     15.820
15.820     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
3.060 2.320 3.220
2006 123  1   180       -407.279   391.569   D      0.103     15.820
15.922     0.65   0.040  0.043  0.003  0.001  0.001  0.002  0.014
3.060 2.320 3.220
2006 124  1   146       -403.611   389.598   D      0.019     15.820
15.839     0.12   0.009  0.010  0.000  0.000  0.000  0.000  0.000
3.060 2.320 3.220
2006 125  1   166       -403.558   390.468   D      0.032     15.820
15.852     0.20   0.020  0.011  0.000  0.000  0.000  0.000  0.000
3.060 2.320 3.220
2006 126  1   184       -404.762   391.414   D      0.000     15.820
15.820     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
3.060 2.320 3.220
2006 127  1     1       -416.171   380.781   D      0.000     15.820
15.820     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
3.060 2.320 3.220
2006 128  1     1       -416.171   380.781   D      0.000     15.820
15.820     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
3.060 2.320 3.220
2006 129  1     1       -416.171   380.781   D      0.000     15.820
15.820     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
3.060 2.320 3.220
2006 130  1     1       -416.171   380.781   D      0.000     15.820
15.820     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
3.060 2.320 3.220
2006 131  1    67       -408.232   386.393   D      0.087     15.820
15.907     0.55   0.027  0.054  0.001  0.000  0.000  0.001  0.004
3.060 2.320 3.220
2006 132  1   166       -403.558   390.468   D      0.069     15.820
15.889     0.43   0.022  0.043  0.001  0.000  0.000  0.000  0.002
3.060 2.320 3.220
2006 133  1   166       -403.558   390.468   D      0.312     15.820
16.132     1.97   0.087  0.187  0.005  0.001  0.001  0.003  0.027
3.060 2.320 3.220
2006 134  1   167       -415.458   392.080   D      0.249     15.820
16.069     1.58   0.083  0.127  0.005  0.001  0.002  0.003  0.028
3.060 2.320 3.220
```

```
2006 135  1   183       -405.392   391.453   D      0.281     15.820
16.100     1.77   0.092  0.158  0.005  0.001  0.001  0.003  0.020
3.060 2.320 3.220
2006 136  1   184       -404.762   391.414   D      0.163     15.820
15.983     1.03   0.080  0.068  0.003  0.001  0.001  0.002  0.009
3.060 2.320 3.220
2006 137  1   106       -404.976   387.937   D      0.244     15.820
16.064     1.55   0.096  0.105  0.006  0.001  0.002  0.003  0.031
3.060 2.320 3.220
2006 138  1    57       -405.767   385.369   D      0.082     15.820
15.902     0.52   0.024  0.050  0.001  0.000  0.000  0.001  0.006
3.060 2.320 3.220
2006 139  1   166       -403.558   390.468   D      0.012     15.820
15.832     0.08   0.010  0.001  0.000  0.000  0.000  0.000  0.000
3.060 2.320 3.220
2006 140  1   166       -403.558   390.468   D      0.006     15.820
15.826     0.04   0.004  0.002  0.000  0.000  0.000  0.000  0.000
3.060 2.320 3.220
2006 141  1   166       -403.558   390.468   D      0.000     15.820
15.820     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
3.060 2.320 3.220
2006 142  1     1       -416.171   380.781   D      0.000     15.820
15.820     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
3.060 2.320 3.220
2006 143  1     1       -416.171   380.781   D      0.000     15.820
15.820     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
3.060 2.320 3.220
2006 144  1     1       -416.171   380.781   D      0.000     15.820
15.820     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
3.060 2.320 3.220
2006 145  1     1       -416.171   380.781   D      0.000     15.820
15.820     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
3.060 2.320 3.220
2006 146  1     1       -416.171   380.781   D      0.000     15.820
15.820     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
3.060 2.320 3.220
2006 147  1   189       -412.259   392.752   D      0.111     15.820
15.930     0.70   0.066  0.010  0.005  0.001  0.001  0.003  0.025
3.060 2.320 3.220
2006 148  1   146       -403.611   389.598   D      0.017     15.820
15.836     0.11   0.012  0.002  0.001  0.000  0.000  0.000  0.002
3.060 2.320 3.220
2006 149  1     1       -416.171   380.781   D      0.000     15.820
15.820     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
3.060 2.320 3.220
2006 150  1   166       -403.558   390.468   D      0.002     15.820
15.822     0.01   0.001  0.000  0.000  0.000  0.000  0.000  0.000
3.060 2.320 3.220
2006 151  1   107       -404.347   387.899   D      0.000     15.820
15.820     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
3.060 2.320 3.220
2006 152  1     1       -416.171   380.781   D      0.000     15.691
15.691     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.180 3.060
2006 153  1     1       -416.171   380.781   D      0.000     15.691
15.691     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.180 3.060
```

```
2006 154  1   146       -403.611   389.598   D      0.002     15.691
15.692     0.01   0.001  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.180 3.060
2006 155  1   166       -403.558   390.468   D      0.071     15.691
15.762     0.45   0.047  0.007  0.002  0.001  0.001  0.001  0.012
2.810 2.180 3.060
2006 156  1   146       -403.611   389.598   D      0.095     15.691
15.786     0.61   0.048  0.021  0.003  0.001  0.001  0.002  0.019
2.810 2.180 3.060
2006 157  1   146       -403.611   389.598   D      0.008     15.691
15.699     0.05   0.006  0.001  0.000  0.000  0.000  0.000  0.000
2.810 2.180 3.060
2006 158  1   146       -403.611   389.598   D      0.124     15.691
15.815     0.79   0.081  0.024  0.004  0.001  0.001  0.002  0.010
2.810 2.180 3.060
2006 159  1     1       -416.171   380.781   D      0.000     15.691
15.691     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.180 3.060
2006 160  1   180       -407.279   391.569   D      0.093     15.691
15.784     0.59   0.057  0.021  0.002  0.001  0.001  0.001  0.010
2.810 2.180 3.060
2006 161  1   185       -414.775   392.910   D      0.005     15.691
15.696     0.03   0.001  0.004  0.000  0.000  0.000  0.000  0.000
2.810 2.180 3.060
2006 162  1   146       -403.611   389.598   D      0.048     15.691
15.739     0.31   0.036  0.008  0.001  0.000  0.000  0.000  0.002
2.810 2.180 3.060
2006 163  1     1       -416.171   380.781   D      0.000     15.691
15.691     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.180 3.060
2006 164  1   185       -414.775   392.910   D      0.000     15.691
15.691     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.180 3.060
2006 165  1   166       -403.558   390.468   D      0.002     15.691
15.693     0.01   0.001  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.180 3.060
2006 166  1   166       -403.558   390.468   D      0.013     15.691
15.704     0.09   0.011  0.001  0.000  0.000  0.000  0.000  0.000
2.810 2.180 3.060
2006 167  1   146       -403.611   389.598   D      0.046     15.691
15.737     0.29   0.036  0.007  0.001  0.000  0.000  0.001  0.001
2.810 2.180 3.060
2006 168  1   183       -405.392   391.453   D      0.055     15.691
15.746     0.35   0.032  0.007  0.002  0.001  0.001  0.001  0.011
2.810 2.180 3.060
2006 169  1   146       -403.611   389.598   D      0.041     15.691
15.732     0.26   0.025  0.008  0.001  0.000  0.000  0.001  0.005
2.810 2.180 3.060
2006 170  1    57       -405.767   385.369   D      0.007     15.691
15.698     0.05   0.005  0.002  0.000  0.000  0.000  0.000  0.000
2.810 2.180 3.060
2006 171  1   146       -403.611   389.598   D      0.058     15.691
15.749     0.37   0.048  0.003  0.001  0.000  0.000  0.001  0.003
2.810 2.180 3.060
2006 172  1   166       -403.558   390.468   D      0.101     15.691
15.792     0.64   0.060  0.012  0.004  0.001  0.001  0.002  0.021
2.810 2.180 3.060
```

```
2006 173  1   166       -403.558   390.468   D      0.082     15.691
15.773     0.52   0.043  0.019  0.003  0.001  0.001  0.001  0.015
2.810 2.180 3.060
2006 174  1   184       -404.762   391.414   D      0.002     15.691
15.693     0.01   0.001  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.180 3.060
2006 175  1    57       -405.767   385.369   D      0.001     15.691
15.692     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.180 3.060
2006 176  1   185       -414.775   392.910   D      0.065     15.691
15.755     0.41   0.038  0.020  0.002  0.000  0.000  0.001  0.003
2.810 2.180 3.060
2006 177  1   185       -414.775   392.910   D      0.065     15.691
15.756     0.41   0.032  0.022  0.002  0.000  0.001  0.001  0.007
2.810 2.180 3.060
2006 178  1   183       -405.392   391.453   D      0.285     15.691
15.976     1.82   0.130  0.113  0.007  0.002  0.002  0.004  0.028
2.810 2.180 3.060
2006 179  1   189       -412.259   392.752   D      0.000     15.691
15.691     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.810 2.180 3.060
2006 180  1   166       -403.558   390.468   D      0.101     15.691
15.792     0.64   0.077  0.010  0.003  0.001  0.001  0.001  0.009
2.810 2.180 3.060
2006 181  1   146       -403.611   389.598   D      0.097     15.691
15.788     0.62   0.073  0.008  0.003  0.001  0.001  0.002  0.011
2.810 2.180 3.060
2006 182  1   166       -403.558   390.468   D      0.010     15.529
15.539     0.06   0.004  0.005  0.000  0.000  0.000  0.000  0.000
2.500 2.000 2.750
2006 183  1   166       -403.558   390.468   D      0.014     15.529
15.543     0.09   0.005  0.008  0.000  0.000  0.000  0.000  0.001
2.500 2.000 2.750
2006 184  1   166       -403.558   390.468   D      0.011     15.529
15.540     0.07   0.009  0.001  0.000  0.000  0.000  0.000  0.001
2.500 2.000 2.750
2006 185  1   166       -403.558   390.468   D      0.145     15.529
15.674     0.93   0.069  0.059  0.003  0.001  0.001  0.002  0.012
2.500 2.000 2.750
2006 186  1   185       -414.775   392.910   D      0.001     15.529
15.530     0.01   0.001  0.000  0.000  0.000  0.000  0.000  0.000
2.500 2.000 2.750
2006 187  1     1       -416.171   380.781   D      0.000     15.529
15.529     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.500 2.000 2.750
2006 188  1   184       -404.762   391.414   D      0.082     15.529
15.611     0.53   0.056  0.005  0.004  0.001  0.001  0.002  0.013
2.500 2.000 2.750
2006 189  1   166       -403.558   390.468   D      0.051     15.529
15.581     0.33   0.041  0.002  0.002  0.000  0.000  0.001  0.005
2.500 2.000 2.750
2006 190  1   188       -412.887   392.791   D      0.111     15.529
15.640     0.72   0.071  0.012  0.004  0.001  0.001  0.002  0.019
2.500 2.000 2.750
2006 191  1   185       -414.775   392.910   D      0.000     15.529
15.529     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.500 2.000 2.750
```

```
2006 192  1   166       -403.558   390.468   D      0.008     15.529
15.537     0.05   0.008  0.000  0.000  0.000  0.000  0.000  0.000
2.500 2.000 2.750
2006 193  1     1       -416.171   380.781   D      0.000     15.529
15.529     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.500 2.000 2.750
2006 194  1   166       -403.558   390.468   D      0.000     15.529
15.529     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.500 2.000 2.750
2006 195  1   107       -404.347   387.899   D      0.000     15.529
15.529     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.500 2.000 2.750
2006 196  1   189       -412.259   392.752   D      0.026     15.529
15.555     0.17   0.016  0.001  0.001  0.000  0.000  0.001  0.006
2.500 2.000 2.750
2006 197  1   164       -404.816   390.545   D      0.175     15.529
15.704     1.13   0.112  0.003  0.008  0.002  0.002  0.005  0.042
2.500 2.000 2.750
2006 198  1   177       -409.167   391.686   D      0.065     15.529
15.594     0.42   0.038  0.004  0.003  0.001  0.001  0.002  0.017
2.500 2.000 2.750
2006 199  1   182       -406.021   391.492   D      0.072     15.529
15.601     0.46   0.044  0.001  0.004  0.001  0.001  0.002  0.019
2.500 2.000 2.750
2006 200  1    71       -405.713   386.238   D      0.141     15.529
15.670     0.91   0.099  0.005  0.006  0.002  0.001  0.003  0.025
2.500 2.000 2.750
2006 201  1     1       -416.171   380.781   D      0.000     15.529
15.529     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.500 2.000 2.750
2006 202  1   183       -405.392   391.453   D      0.151     15.529
15.681     0.98   0.064  0.055  0.004  0.001  0.001  0.003  0.023
2.500 2.000 2.750
2006 203  1    57       -405.767   385.369   D      0.037     15.529
15.566     0.24   0.024  0.008  0.001  0.000  0.000  0.001  0.003
2.500 2.000 2.750
2006 204  1   189       -412.259   392.752   D      0.028     15.529
15.557     0.18   0.024  0.002  0.001  0.000  0.000  0.000  0.000
2.500 2.000 2.750
2006 205  1   185       -414.775   392.910   D      0.113     15.529
15.642     0.73   0.087  0.002  0.004  0.001  0.001  0.002  0.015
2.500 2.000 2.750
2006 206  1   177       -409.167   391.686   D      0.071     15.529
15.601     0.46   0.040  0.004  0.003  0.001  0.001  0.002  0.020
2.500 2.000 2.750
2006 207  1     3       -414.911   380.702   D      0.032     15.529
15.561     0.20   0.017  0.007  0.001  0.000  0.000  0.001  0.005
2.500 2.000 2.750
2006 208  1     4       -417.376   381.730   D      0.004     15.529
15.534     0.03   0.004  0.000  0.000  0.000  0.000  0.000  0.000
2.500 2.000 2.750
2006 209  1   166       -403.558   390.468   D      0.004     15.529
15.533     0.02   0.003  0.001  0.000  0.000  0.000  0.000  0.000
2.500 2.000 2.750
2006 210  1   177       -409.167   391.686   D      0.246     15.529
15.775     1.58   0.199  0.012  0.011  0.003  0.003  0.006  0.012
2.500 2.000 2.750
```

```
2006 211  1   183       -405.392   391.453   D      0.069     15.529
15.599     0.45   0.043  0.001  0.003  0.001  0.001  0.002  0.018
2.500 2.000 2.750
2006 212  1   185       -414.775   392.910   D      0.009     15.529
15.538     0.06   0.006  0.001  0.000  0.000  0.000  0.000  0.002
2.500 2.000 2.750
2006 213  1   185       -414.775   392.910   D      0.044     15.508
15.551     0.28   0.012  0.020  0.001  0.000  0.000  0.001  0.009
2.460 1.970 2.680
2006 214  1   146       -403.611   389.598   D      0.276     15.508
15.784     1.78   0.137  0.083  0.008  0.002  0.002  0.005  0.039
2.460 1.970 2.680
2006 215  1    71       -405.713   386.238   D      0.050     15.508
15.558     0.32   0.021  0.022  0.001  0.000  0.000  0.001  0.004
2.460 1.970 2.680
2006 216  1   134       -411.163   390.065   D      0.019     15.508
15.527     0.12   0.014  0.002  0.001  0.000  0.000  0.000  0.002
2.460 1.970 2.680
2006 217  1   146       -403.611   389.598   D      0.081     15.508
15.589     0.52   0.047  0.006  0.004  0.001  0.001  0.002  0.020
2.460 1.970 2.680
2006 218  1   106       -404.976   387.937   D      0.092     15.508
15.600     0.59   0.046  0.022  0.003  0.001  0.001  0.002  0.017
2.460 1.970 2.680
2006 219  1     1       -416.171   380.781   D      0.000     15.508
15.508     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.460 1.970 2.680
2006 220  1     1       -416.171   380.781   D      0.000     15.508
15.508     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.460 1.970 2.680
2006 221  1   166       -403.558   390.468   D      0.010     15.508
15.518     0.06   0.009  0.000  0.000  0.000  0.000  0.000  0.000
2.460 1.970 2.680
2006 222  1    57       -405.767   385.369   D      0.040     15.508
15.547     0.25   0.034  0.004  0.001  0.000  0.000  0.000  0.000
2.460 1.970 2.680
2006 223  1   189       -412.259   392.752   D      0.022     15.508
15.530     0.14   0.014  0.008  0.000  0.000  0.000  0.000  0.000
2.460 1.970 2.680
2006 224  1   166       -403.558   390.468   D      0.031     15.508
15.539     0.20   0.018  0.004  0.001  0.000  0.000  0.001  0.006
2.460 1.970 2.680
2006 225  1   184       -404.762   391.414   D      0.099     15.508
15.607     0.64   0.057  0.017  0.004  0.001  0.001  0.002  0.017
2.460 1.970 2.680
2006 226  1    57       -405.767   385.369   D      0.022     15.508
15.530     0.14   0.009  0.011  0.000  0.000  0.000  0.000  0.001
2.460 1.970 2.680
2006 227  1     1       -416.171   380.781   D      0.000     15.508
15.508     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.460 1.970 2.680
2006 228  1   166       -403.558   390.468   D      0.010     15.508
15.518     0.07   0.009  0.001  0.000  0.000  0.000  0.000  0.000
2.460 1.970 2.680
2006 229  1   185       -414.775   392.910   D      0.021     15.508
15.529     0.14   0.012  0.004  0.001  0.000  0.000  0.000  0.004
2.460 1.970 2.680
```

```
2006 230  1   183       -405.392   391.453   D      0.424     15.508
15.932     2.74   0.157  0.169  0.013  0.003  0.004  0.007  0.071
2.460 1.970 2.680
2006 231  1   183       -405.392   391.453   D      0.306     15.508
15.814     1.97   0.075  0.196  0.005  0.001  0.001  0.003  0.024
2.460 1.970 2.680
2006 232  1     1       -416.171   380.781   D      0.076     15.508
15.583     0.49   0.044  0.013  0.003  0.001  0.001  0.002  0.013
2.460 1.970 2.680
2006 233  1     3       -414.911   380.702   D      0.036     15.508
15.544     0.23   0.024  0.009  0.001  0.000  0.000  0.000  0.002
2.460 1.970 2.680
2006 234  1     1       -416.171   380.781   D      0.000     15.508
15.508     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.460 1.970 2.680
2006 235  1   166       -403.558   390.468   D      0.007     15.508
15.515     0.05   0.005  0.000  0.000  0.000  0.000  0.000  0.001
2.460 1.970 2.680
2006 236  1   183       -405.392   391.453   D      0.076     15.508
15.584     0.49   0.039  0.010  0.003  0.001  0.001  0.002  0.019
2.460 1.970 2.680
2006 237  1    57       -405.767   385.369   D      0.037     15.508
15.545     0.24   0.020  0.010  0.001  0.000  0.000  0.001  0.005
2.460 1.970 2.680
2006 238  1   183       -405.392   391.453   D      0.019     15.508
15.526     0.12   0.007  0.010  0.000  0.000  0.000  0.000  0.001
2.460 1.970 2.680
2006 239  1   188       -412.887   392.791   D      0.186     15.508
15.694     1.20   0.068  0.091  0.003  0.001  0.001  0.001  0.022
2.460 1.970 2.680
2006 240  1   146       -403.611   389.598   D      0.058     15.508
15.565     0.37   0.033  0.014  0.002  0.000  0.000  0.001  0.008
2.460 1.970 2.680
2006 241  1     1       -416.171   380.781   D      0.000     15.508
15.508     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.460 1.970 2.680
2006 242  1     1       -416.171   380.781   D      0.000     15.508
15.508     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.460 1.970 2.680
2006 243  1   185       -414.775   392.910   D      0.179     15.508
15.687     1.16   0.089  0.030  0.008  0.002  0.002  0.004  0.044
2.460 1.970 2.680
2006 244  1   185       -414.775   392.910   D      0.100     15.497
15.597     0.65   0.038  0.048  0.001  0.000  0.000  0.001  0.011
2.440 1.950 2.630
2006 245  1   166       -403.558   390.468   D      0.115     15.497
15.612     0.74   0.037  0.061  0.003  0.001  0.001  0.001  0.012
2.440 1.950 2.630
2006 246  1   188       -412.887   392.791   D      0.029     15.497
15.526     0.19   0.019  0.007  0.001  0.000  0.000  0.000  0.001
2.440 1.950 2.630
2006 247  1   186       -414.145   392.870   D      0.010     15.497
15.507     0.06   0.003  0.007  0.000  0.000  0.000  0.000  0.000
2.440 1.950 2.630
2006 248  1     1       -416.171   380.781   D      0.000     15.497
15.497     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.440 1.950 2.630
```

```
2006 249  1   147       -415.513   391.211   D      0.000     15.497
15.497     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.440 1.950 2.630
2006 250  1   184       -404.762   391.414   D      0.041     15.497
15.538     0.27   0.031  0.005  0.001  0.000  0.000  0.001  0.003
2.440 1.950 2.630
2006 251  1   166       -403.558   390.468   D      0.011     15.497
15.508     0.07   0.007  0.002  0.000  0.000  0.000  0.000  0.001
2.440 1.950 2.630
2006 252  1     1       -416.171   380.781   D      0.000     15.497
15.497     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.440 1.950 2.630
2006 253  1     1       -416.171   380.781   D      0.000     15.497
15.497     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.440 1.950 2.630
2006 254  1   166       -403.558   390.468   D      0.085     15.497
15.582     0.55   0.036  0.045  0.001  0.000  0.000  0.001  0.001
2.440 1.950 2.630
2006 255  1   146       -403.611   389.598   D      0.063     15.497
15.560     0.41   0.020  0.038  0.001  0.000  0.000  0.000  0.003
2.440 1.950 2.630
2006 256  1   166       -403.558   390.468   D      0.000     15.497
15.497     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.440 1.950 2.630
2006 257  1     1       -416.171   380.781   D      0.000     15.497
15.497     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.440 1.950 2.630
2006 258  1   184       -404.762   391.414   D      0.003     15.497
15.500     0.02   0.002  0.001  0.000  0.000  0.000  0.000  0.000
2.440 1.950 2.630
2006 259  1   184       -404.762   391.414   D      0.015     15.497
15.512     0.10   0.007  0.007  0.000  0.000  0.000  0.000  0.001
2.440 1.950 2.630
2006 260  1     1       -416.171   380.781   D      0.000     15.497
15.497     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.440 1.950 2.630
2006 261  1   166       -403.558   390.468   D      0.001     15.497
15.498     0.01   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.440 1.950 2.630
2006 262  1   166       -403.558   390.468   D      0.014     15.497
15.511     0.09   0.009  0.005  0.000  0.000  0.000  0.000  0.000
2.440 1.950 2.630
2006 263  1   147       -415.513   391.211   D      0.000     15.497
15.497     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.440 1.950 2.630
2006 264  1   166       -403.558   390.468   D      0.096     15.497
15.593     0.62   0.044  0.036  0.003  0.001  0.001  0.001  0.012
2.440 1.950 2.630
2006 265  1     1       -416.171   380.781   D      0.000     15.497
15.497     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.440 1.950 2.630
2006 266  1     1       -416.171   380.781   D      0.000     15.497
15.497     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.440 1.950 2.630
2006 267  1     1       -416.171   380.781   D      0.000     15.497
15.497     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.440 1.950 2.630
```

```
2006 268  1   166       -403.558   390.468   D      0.016     15.497
15.513     0.10   0.008  0.004  0.001  0.000  0.000  0.000  0.003
2.440 1.950 2.630
2006 269  1   146       -403.611   389.598   D      0.004     15.497
15.501     0.03   0.002  0.000  0.000  0.000  0.000  0.000  0.001
2.440 1.950 2.630
2006 270  1     1       -416.171   380.781   D      0.000     15.497
15.497     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.440 1.950 2.630
2006 271  1   166       -403.558   390.468   D      0.018     15.497
15.515     0.12   0.009  0.004  0.001  0.000  0.000  0.000  0.004
2.440 1.950 2.630
2006 272  1     1       -416.171   380.781   D      0.000     15.497
15.497     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.440 1.950 2.630
2006 273  1   166       -403.558   390.468   D      0.001     15.497
15.498     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.440 1.950 2.630
2006 274  1   187       -413.516   392.831   D      0.008     15.539
15.547     0.05   0.004  0.003  0.000  0.000  0.000  0.000  0.001
2.520 2.000 2.750
2006 275  1   146       -403.611   389.598   D      0.619     15.539
16.158     3.98   0.264  0.232  0.018  0.004  0.005  0.010  0.086
2.520 2.000 2.750
2006 276  1   166       -403.558   390.468   D      0.051     15.539
15.590     0.33   0.028  0.015  0.001  0.000  0.000  0.001  0.005
2.520 2.000 2.750
2006 277  1   167       -415.458   392.080   D      0.068     15.539
15.607     0.44   0.023  0.029  0.002  0.000  0.001  0.001  0.012
2.520 2.000 2.750
2006 278  1     1       -416.171   380.781   D      0.000     15.539
15.539     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.520 2.000 2.750
2006 279  1   185       -414.775   392.910   D      0.228     15.539
15.767     1.47   0.114  0.063  0.008  0.002  0.002  0.004  0.035
2.520 2.000 2.750
2006 280  1   183       -405.392   391.453   D      0.099     15.539
15.639     0.64   0.045  0.035  0.003  0.001  0.001  0.002  0.013
2.520 2.000 2.750
2006 281  1   180       -407.279   391.569   D      0.043     15.539
15.583     0.28   0.017  0.019  0.001  0.000  0.000  0.001  0.005
2.520 2.000 2.750
2006 282  1     1       -416.171   380.781   D      0.000     15.539
15.539     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.520 2.000 2.750
2006 283  1     1       -416.171   380.781   D      0.000     15.539
15.539     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.520 2.000 2.750
2006 284  1     1       -416.171   380.781   D      0.000     15.539
15.539     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.520 2.000 2.750
2006 285  1     1       -416.171   380.781   D      0.000     15.539
15.539     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.520 2.000 2.750
2006 286  1   164       -404.816   390.545   D      0.438     15.539
15.978     2.82   0.140  0.212  0.012  0.003  0.003  0.007  0.062
2.520 2.000 2.750
```

```
2006 287  1   146       -403.611   389.598   D      0.285     15.539
15.824     1.83   0.069  0.189  0.004  0.001  0.001  0.002  0.018
2.520 2.000 2.750
2006 288  1     1       -416.171   380.781   D      0.000     15.539
15.539     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.520 2.000 2.750
2006 289  1   146       -403.611   389.598   D      0.001     15.539
15.540     0.01   0.001  0.000  0.000  0.000  0.000  0.000  0.000
2.520 2.000 2.750
2006 290  1     1       -416.171   380.781   D      0.000     15.539
15.539     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.520 2.000 2.750
2006 291  1     1       -416.171   380.781   D      0.000     15.539
15.539     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.520 2.000 2.750
2006 292  1     1       -416.171   380.781   D      0.000     15.539
15.539     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.520 2.000 2.750
2006 293  1   187       -413.516   392.831   D      0.445     15.539
15.984     2.86   0.171  0.221  0.007  0.002  0.002  0.004  0.039
2.520 2.000 2.750
2006 294  1   146       -403.611   389.598   D      0.003     15.539
15.542     0.02   0.001  0.001  0.000  0.000  0.000  0.000  0.000
2.520 2.000 2.750
2006 295  1     1       -416.171   380.781   D      0.000     15.539
15.539     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.520 2.000 2.750
2006 296  1     1       -416.171   380.781   D      0.000     15.539
15.539     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.520 2.000 2.750
2006 297  1   166       -403.558   390.468   D      0.000     15.539
15.539     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.520 2.000 2.750
2006 298  1   146       -403.611   389.598   D      0.033     15.539
15.572     0.21   0.019  0.009  0.001  0.000  0.000  0.001  0.004
2.520 2.000 2.750
2006 299  1   166       -403.558   390.468   D      0.033     15.539
15.573     0.22   0.010  0.018  0.001  0.000  0.000  0.000  0.003
2.520 2.000 2.750
2006 300  1     1       -416.171   380.781   D      0.000     15.539
15.539     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.520 2.000 2.750
2006 301  1     1       -416.171   380.781   D      0.000     15.539
15.539     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.520 2.000 2.750
2006 302  1     1       -416.171   380.781   D      0.000     15.539
15.539     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.520 2.000 2.750
2006 303  1   166       -403.558   390.468   D      0.002     15.539
15.541     0.01   0.001  0.001  0.000  0.000  0.000  0.000  0.000
2.520 2.000 2.750
2006 304  1   166       -403.558   390.468   D      0.318     15.539
15.857     2.05   0.085  0.212  0.004  0.001  0.001  0.002  0.012
2.520 2.000 2.750
2006 305  1     1       -416.171   380.781   D      0.000     15.776
15.776     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.970 2.300 3.280
```

```
2006 306  1     1       -416.171   380.781   D      0.000     15.776
15.776     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.970 2.300 3.280
2006 307  1   166       -403.558   390.468   D      0.004     15.776
15.780     0.03   0.001  0.003  0.000  0.000  0.000  0.000  0.000
2.970 2.300 3.280
2006 308  1     1       -416.171   380.781   D      0.000     15.776
15.776     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.970 2.300 3.280
2006 309  1     1       -416.171   380.781   D      0.000     15.776
15.776     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.970 2.300 3.280
2006 310  1     1       -416.171   380.781   D      0.000     15.776
15.776     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.970 2.300 3.280
2006 311  1     1       -416.171   380.781   D      0.000     15.776
15.776     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.970 2.300 3.280
2006 312  1     1       -416.171   380.781   D      0.000     15.776
15.776     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.970 2.300 3.280
2006 313  1   166       -403.558   390.468   D      0.247     15.776
16.023     1.57   0.089  0.122  0.005  0.001  0.001  0.003  0.026
2.970 2.300 3.280
2006 314  1   167       -415.458   392.080   D      0.020     15.776
15.796     0.13   0.008  0.012  0.000  0.000  0.000  0.000  0.000
2.970 2.300 3.280
2006 315  1     1       -416.171   380.781   D      0.000     15.776
15.776     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.970 2.300 3.280
2006 316  1     1       -416.171   380.781   D      0.000     15.776
15.776     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.970 2.300 3.280
2006 317  1     1       -416.171   380.781   D      0.000     15.776
15.776     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.970 2.300 3.280
2006 318  1     1       -416.171   380.781   D      0.000     15.776
15.776     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.970 2.300 3.280
2006 319  1     1       -416.171   380.781   D      0.000     15.776
15.776     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.970 2.300 3.280
2006 320  1     1       -416.171   380.781   D      0.000     15.776
15.776     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.970 2.300 3.280
2006 321  1   166       -403.558   390.468   D      0.331     15.776
16.106     2.10   0.085  0.226  0.004  0.001  0.001  0.002  0.011
2.970 2.300 3.280
2006 322  1   166       -403.558   390.468   D      0.004     15.776
15.780     0.03   0.001  0.003  0.000  0.000  0.000  0.000  0.000
2.970 2.300 3.280
2006 323  1     1       -416.171   380.781   D      0.000     15.776
15.776     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.970 2.300 3.280
2006 324  1   184       -404.762   391.414   D      0.014     15.776
15.790     0.09   0.004  0.009  0.000  0.000  0.000  0.000  0.001
2.970 2.300 3.280
```

```
2006 325  1   166       -403.558   390.468   D      0.022     15.776
15.798     0.14   0.005  0.016  0.000  0.000  0.000  0.000  0.001
2.970 2.300 3.280
2006 326  1   166       -403.558   390.468   D      0.025     15.776
15.801     0.16   0.008  0.016  0.000  0.000  0.000  0.000  0.001
2.970 2.300 3.280
2006 327  1     1       -416.171   380.781   D      0.000     15.776
15.776     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.970 2.300 3.280
2006 328  1     1       -416.171   380.781   D      0.000     15.776
15.776     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.970 2.300 3.280
2006 329  1    48       -413.323   385.838   D      0.265     15.776
16.041     1.68   0.078  0.166  0.004  0.001  0.001  0.002  0.013
2.970 2.300 3.280
2006 330  1   166       -403.558   390.468   D      0.685     15.776
16.460     4.34   0.257  0.340  0.013  0.003  0.003  0.007  0.060
2.970 2.300 3.280
2006 331  1   166       -403.558   390.468   D      0.000     15.776
15.776     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.970 2.300 3.280
2006 332  1     4       -417.376   381.730   D      0.018     15.776
15.794     0.11   0.003  0.013  0.000  0.000  0.000  0.000  0.001
2.970 2.300 3.280
2006 333  1   179       -407.909   391.608   D      0.146     15.776
15.922     0.93   0.054  0.061  0.004  0.001  0.001  0.002  0.023
2.970 2.300 3.280
2006 334  1     1       -416.171   380.781   D      0.000     15.776
15.776     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.970 2.300 3.280
2006 335  1     1       -416.171   380.781   D      0.000     15.704
15.704     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.830 2.240 3.240
2006 336  1   146       -403.611   389.598   D      0.001     15.704
15.706     0.01   0.001  0.001  0.000  0.000  0.000  0.000  0.000
2.830 2.240 3.240
2006 337  1     1       -416.171   380.781   D      0.000     15.704
15.704     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.830 2.240 3.240
2006 338  1     1       -416.171   380.781   D      0.000     15.704
15.704     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.830 2.240 3.240
2006 339  1     1       -416.171   380.781   D      0.000     15.704
15.704     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.830 2.240 3.240
2006 340  1   174       -411.054   391.804   D      0.128     15.704
15.833     0.82   0.049  0.049  0.004  0.001  0.001  0.002  0.022
2.830 2.240 3.240
2006 341  1   107       -404.347   387.899   D      0.006     15.704
15.710     0.04   0.001  0.004  0.000  0.000  0.000  0.000  0.000
2.830 2.240 3.240
2006 342  1     1       -416.171   380.781   D      0.000     15.704
15.704     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.830 2.240 3.240
2006 343  1   166       -403.558   390.468   D      0.031     15.704
15.735     0.20   0.009  0.020  0.000  0.000  0.000  0.000  0.001
2.830 2.240 3.240
```

```
2006 344  1     1       -416.171   380.781   D      0.000     15.704
15.704     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.830 2.240 3.240
2006 345  1     1       -416.171   380.781   D      0.000     15.704
15.704     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.830 2.240 3.240
2006 346  1     1       -416.171   380.781   D      0.000     15.704
15.704     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.830 2.240 3.240
2006 347  1     1       -416.171   380.781   D      0.000     15.704
15.704     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.830 2.240 3.240
2006 348  1     1       -416.171   380.781   D      0.000     15.704
15.704     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.830 2.240 3.240
2006 349  1     1       -416.171   380.781   D      0.000     15.704
15.704     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.830 2.240 3.240
2006 350  1     1       -416.171   380.781   D      0.000     15.704
15.704     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.830 2.240 3.240
2006 351  1   187       -413.516   392.831   D      0.002     15.704
15.706     0.01   0.000  0.001  0.000  0.000  0.000  0.000  0.000
2.830 2.240 3.240
2006 352  1     1       -416.171   380.781   D      0.000     15.704
15.704     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.830 2.240 3.240
2006 353  1    57       -405.767   385.369   D      0.093     15.704
15.797     0.59   0.028  0.048  0.002  0.001  0.001  0.001  0.012
2.830 2.240 3.240
2006 354  1   185       -414.775   392.910   D      0.091     15.704
15.795     0.58   0.035  0.034  0.003  0.001  0.001  0.002  0.016
2.830 2.240 3.240
2006 355  1   185       -414.775   392.910   D      0.119     15.704
15.823     0.76   0.031  0.081  0.001  0.000  0.000  0.001  0.003
2.830 2.240 3.240
2006 356  1     1       -416.171   380.781   D      0.000     15.704
15.704     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.830 2.240 3.240
2006 357  1     1       -416.171   380.781   D      0.000     15.704
15.704     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.830 2.240 3.240
2006 358  1     1       -416.171   380.781   D      0.000     15.704
15.704     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.830 2.240 3.240
2006 359  1     1       -416.171   380.781   D      0.000     15.704
15.704     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.830 2.240 3.240
2006 360  1     1       -416.171   380.781   D      0.000     15.704
15.704     0.00   0.000  0.000  0.000  0.000  0.000  0.000  0.000
2.830 2.240 3.240
2006 361  1   189       -412.259   392.752   D      0.369     15.704
16.073     2.35   0.101  0.228  0.006  0.001  0.002  0.003  0.028
2.830 2.240 3.240
2006 362  1     4       -417.376   381.730   D      0.057     15.704
15.762     0.37   0.021  0.025  0.001  0.000  0.000  0.001  0.008
2.830 2.240 3.240
```

2006 363 1   166   -403.558   390.468   D   0.035   15.704
15.740   0.23   0.011 0.017 0.001 0.000 0.000 0.000 0.005
2.830 2.240 3.240

 --- Ranked Daily Visibility Change ---
START TIME
Modeled Extinction by Species   Small Large SSalt
YEAR DAY HR RECEPTOR   COORDINATES (km) TYPE BEXT(Model) BEXT(BKG)
BEXT(Total) %CHANGE bxSO4 bxNO3   bxOC   bxEC bxPMC bxPMF bxNO2
F(RH) F(RH) F(RH)
2006 330 1   166   -403.558   390.468   D   0.685   15.776
16.460   4.34   0.257 0.340 0.013 0.003 0.003 0.007 0.060
2.970 2.300 3.280   1
2006 275 1   146   -403.611   389.598   D   0.619   15.539
16.158   3.98   0.264 0.232 0.018 0.004 0.005 0.010 0.086
2.520 2.000 2.750   2
2006 38 1   186   -414.145   392.870   D   0.605   15.694
16.298   3.85   0.166 0.359 0.011 0.003 0.003 0.006 0.056
2.810 2.220 3.200   3
2006 293 1   187   -413.516   392.831   D   0.445   15.539
15.984   2.86   0.171 0.221 0.007 0.002 0.002 0.004 0.039
2.520 2.000 2.750   4
2006 286 1   164   -404.816   390.545   D   0.438   15.539
15.978   2.82   0.140 0.212 0.012 0.003 0.003 0.007 0.062
2.520 2.000 2.750   5
2006 64 1   180   -407.279   391.569   D   0.444   15.717
16.161   2.82   0.119 0.268 0.008 0.002 0.002 0.004 0.041
2.860 2.220 3.130   6
2006 230 1   183   -405.392   391.453   D   0.424   15.508
15.932   2.74   0.157 0.169 0.013 0.003 0.004 0.007 0.071
2.460 1.970 2.680   7
2006 361 1   189   -412.259   392.752   D   0.369   15.704
16.073   2.35   0.101 0.228 0.006 0.001 0.002 0.003 0.028
2.830 2.240 3.240   8
2006 39 1   167   -415.458   392.080   D   0.356   15.694
16.049   2.27   0.077 0.254 0.004 0.001 0.001 0.002 0.016
2.810 2.220 3.200   9
2006 321 1   166   -403.558   390.468   D   0.331   15.776
16.106   2.10   0.085 0.226 0.004 0.001 0.001 0.002 0.011
2.970 2.300 3.280   10
2006 304 1   166   -403.558   390.468   D   0.318   15.539
15.857   2.05   0.085 0.212 0.004 0.001 0.001 0.002 0.012
2.520 2.000 2.750   11
2006 231 1   183   -405.392   391.453   D   0.306   15.508
15.814   1.97   0.075 0.196 0.005 0.001 0.001 0.003 0.024
2.460 1.970 2.680   12
2006 133 1   166   -403.558   390.468   D   0.312   15.820
16.132   1.97   0.087 0.187 0.005 0.001 0.001 0.003 0.027
3.060 2.320 3.220   13
2006 287 1   146   -403.611   389.598   D   0.285   15.539
15.824   1.83   0.069 0.189 0.004 0.001 0.001 0.002 0.018
2.520 2.000 2.750   14
2006 178 1   183   -405.392   391.453   D   0.285   15.691
15.976   1.82   0.130 0.113 0.007 0.002 0.002 0.004 0.028
2.810 2.180 3.060   15
2006 214 1   146   -403.611   389.598   D   0.276   15.508

```
15.784     1.78   0.137  0.083  0.008  0.002  0.002  0.005  0.039
2.460 1.970 2.680   16
2006 135  1   183       -405.392   391.453   D      0.281     15.820
16.100     1.77   0.092  0.158  0.005  0.001  0.001  0.003  0.020
3.060 2.320 3.220   17
2006 329  1    48       -413.323   385.838   D      0.265     15.776
16.041     1.68   0.078  0.166  0.004  0.001  0.001  0.002  0.013
2.970 2.300 3.280   18
2006  61  1   146       -403.611   389.598   D      0.259     15.717
15.977     1.65   0.084  0.165  0.003  0.001  0.001  0.002  0.004
2.860 2.220 3.130   19
2006 210  1   177       -409.167   391.686   D      0.246     15.529
15.775     1.58   0.199  0.012  0.011  0.003  0.003  0.006  0.012
2.500 2.000 2.750   20
2006 134  1   167       -415.458   392.080   D      0.249     15.820
16.069     1.58   0.083  0.127  0.005  0.001  0.002  0.003  0.028
3.060 2.320 3.220   21
2006 313  1   166       -403.558   390.468   D      0.247     15.776
16.023     1.57   0.089  0.122  0.005  0.001  0.001  0.003  0.026
2.970 2.300 3.280   22

 --- Number of days with Extinction Change  =>   5.0 % :         0
 --- Number of days with Extinction Change  =>  10.0 % :         0
 ---             Largest Extinction Change  =                 4.34 %

*****************************************************************************
************************************************************
                                                 CALPOST  Version 6.221
Level 080724
*****************************************************************************
************************************************************


                                                          Run-Length
VISIBILITY

                                                             VISIB  BOESNCFG

                                                               (1/Mega-m)


             RECEPTOR    COORDINATES (km)  TYPE BEXT(Model) BEXT(BKG)
BEXT(Total) %CHANGE

              166       -403.558   390.468   D      0.040     15.655
15.695     0.26

 --- Number of recs with Extinction Change  >    1.0 % :         0
 ---             Largest Extinction Change  =                 0.26 %

*****************************************************************************
************************************************************
                                                 CALPOST  Version 6.221
Level 080724
```

****

24HR VISIBILITY

VISIB BOESNCFG

(deciview)

START TIME
% of Modeled Extinction by Species Small Large SSalt

YEAR	DAY	HR	RECEPTOR	COORDINATES (km)		TYPE	DV(Total)	DV(BKG)	DELTA DV	%_SO4	%_NO3	%_OC	%_EC	%_PMC	%_PMF	%_NO2	F(RH)	F(RH)	F(RH)
2006	1	1	146	-403.611	389.598	D	4.617	4.507	0.110	71.87	21.41	1.15	0.29	0.23	0.64	4.40	2.810	2.230	3.250
2006	2	1	1	-416.171	380.781	D	4.507	4.507	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.810	2.230	3.250
2006	3	1	166	-403.558	390.468	D	4.520	4.507	0.013	32.10	63.37	0.77	0.19	0.18	0.43	2.96	2.810	2.230	3.250
2006	4	1	1	-416.171	380.781	D	4.507	4.507	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.810	2.230	3.250
2006	5	1	1	-416.171	380.781	D	4.507	4.507	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.810	2.230	3.250
2006	6	1	1	-416.171	380.781	D	4.507	4.507	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.810	2.230	3.250
2006	7	1	146	-403.611	389.598	D	4.570	4.507	0.063	31.39	56.50	1.77	0.45	0.45	1.00	8.44	2.810	2.230	3.250
2006	8	1	146	-403.611	389.598	D	4.575	4.507	0.068	37.66	38.38	2.90	0.73	0.80	1.65	17.89	2.810	2.230	3.250
2006	9	1	1	-416.171	380.781	D	4.507	4.507	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.810	2.230	3.250
2006	10	1	1	-416.171	380.781	D	4.507	4.507	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.810	2.230	3.250
2006	11	1	1	-416.171	380.781	D	4.507	4.507	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.810	2.230	3.250
2006	12	1	1	-416.171	380.781	D	4.507	4.507	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.810	2.230	3.250
2006	13	1	1	-416.171	380.781	D	4.507	4.507	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.810	2.230	3.250

```
2006  14  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.230
3.250
2006  15  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.230
3.250
2006  16  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.230
3.250
2006  17  1   166       -403.558   390.468   D      4.527      4.507
0.019  33.80  45.58   2.58   0.65   0.76   1.46  15.17  2.810 2.230
3.250
2006  18  1   184       -404.762   391.414   D      4.625      4.507
0.117  37.09  42.56   2.72   0.68   0.70   1.53  14.72  2.810 2.230
3.250
2006  19  1   146       -403.611   389.598   D      4.508      4.507
0.001  38.48  38.57   2.92   0.73   0.78   1.66  16.87  2.810 2.230
3.250
2006  20  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.230
3.250
2006  21  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.230
3.250
2006  22  1   166       -403.558   390.468   D      4.574      4.507
0.067  30.64  54.23   2.01   0.50   0.50   1.14  10.97  2.810 2.230
3.250
2006  23  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.230
3.250
2006  24  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.230
3.250
2006  25  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.230
3.250
2006  26  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.230
3.250
2006  27  1   166       -403.558   390.468   D      4.508      4.507
0.001  29.21  55.55   1.97   0.49   0.57   1.12  11.12  2.810 2.230
3.250
2006  28  1   166       -403.558   390.468   D      4.509      4.507
0.002  24.03  67.74   1.52   0.38   0.38   0.87   5.08  2.810 2.230
3.250
2006  29  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.230
3.250
2006  30  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.230
3.250
2006  31  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.230
3.250
2006  32  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.220
3.200
```

```
2006  33  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.220
3.200
2006  34  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.220
3.200
2006  35  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.220
3.200
2006  36  1   146       -403.611   389.598   D      4.533      4.507
0.026  36.80  42.19   2.65   0.66   0.66   1.50  15.54  2.810 2.220
3.200
2006  37  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.220
3.200
2006  38  1   186       -414.145   392.870   D      4.885      4.507
0.378  27.38  59.43   1.84   0.46   0.52   1.04   9.33  2.810 2.220
3.200
2006  39  1   167       -415.458   392.080   D      4.731      4.507
0.224  21.51  71.49   1.17   0.29   0.30   0.66   4.57  2.810 2.220
3.200
2006  40  1   166       -403.558   390.468   D      4.507      4.507
0.000  27.69  71.18   0.53   0.14   0.07   0.29   0.03  2.810 2.220
3.200
2006  41  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.220
3.200
2006  42  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.220
3.200
2006  43  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.220
3.200
2006  44  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.220
3.200
2006  45  1   146       -403.611   389.598   D      4.564      4.507
0.058  41.16  44.41   2.00   0.50   0.52   1.13  10.28  2.810 2.220
3.200
2006  46  1   146       -403.611   389.598   D      4.559      4.507
0.052  42.29  42.24   2.07   0.52   0.61   1.18  11.10  2.810 2.220
3.200
2006  47  1   178       -408.538   391.647   D      4.546      4.507
0.039  34.80  42.87   2.70   0.68   0.73   1.53  16.69  2.810 2.220
3.200
2006  48  1    57       -405.767   385.369   D      4.526      4.507
0.019  31.98  63.73   0.94   0.24   0.25   0.53   2.34  2.810 2.220
3.200
2006  49  1   166       -403.558   390.468   D      4.522      4.507
0.015  32.25  66.42   0.61   0.15   0.11   0.34   0.11  2.810 2.220
3.200
2006  50  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.220
3.200
2006  51  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.220
3.200
```

```
2006  52  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.220
3.200
2006  53  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.220
3.200
2006  54  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.220
3.200
2006  55  1   166       -403.558   390.468   D      4.571      4.507
0.065  34.65  43.44   2.68   0.67   0.72   1.52  16.33  2.810 2.220
3.200
2006  56  1   166       -403.558   390.468   D      4.524      4.507
0.017  21.20  69.61   1.25   0.31   0.32   0.71   6.61  2.810 2.220
3.200
2006  57  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.220
3.200
2006  58  1   166       -403.558   390.468   D      4.507      4.507
0.000  53.64  42.47   1.37   0.35   0.37   0.79   0.98  2.810 2.220
3.200
2006  59  1     1       -416.171   380.781   D      4.507      4.507
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.220
3.200
2006  60  1     1       -416.171   380.781   D      4.522      4.522
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.860 2.220
3.130
2006  61  1   146       -403.611   389.598   D      4.686      4.522
0.164  32.52  63.51   1.07   0.27   0.30   0.61   1.73  2.860 2.220
3.130
2006  62  1     1       -416.171   380.781   D      4.522      4.522
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.860 2.220
3.130
2006  63  1   166       -403.558   390.468   D      4.523      4.522
0.001  26.37  70.77   0.99   0.25   0.21   0.56   0.85  2.860 2.220
3.130
2006  64  1   180       -407.279   391.569   D      4.800      4.522
0.278  26.75  60.36   1.77   0.44   0.49   1.00   9.19  2.860 2.220
3.130
2006  65  1   189       -412.259   392.752   D      4.539      4.522
0.018  21.11  71.75   1.12   0.28   0.30   0.64   4.81  2.860 2.220
3.130
2006  66  1     1       -416.171   380.781   D      4.522      4.522
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.860 2.220
3.130
2006  67  1     1       -416.171   380.781   D      4.522      4.522
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.860 2.220
3.130
2006  68  1     1       -416.171   380.781   D      4.522      4.522
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.860 2.220
3.130
2006  69  1   189       -412.259   392.752   D      4.631      4.522
0.110  28.85  60.05   1.62   0.41   0.47   0.92   7.69  2.860 2.220
3.130
2006  70  1     3       -414.911   380.702   D      4.522      4.522
0.000  24.93  69.42   0.95   0.24   0.27   0.55   3.75  2.860 2.220
3.130
```

```
2006  71  1   187       -413.516   392.831   D      4.566      4.522
0.044  40.56  41.68   2.24   0.56   0.55   1.27  13.13  2.860 2.220
3.130
2006  72  1    57       -405.767   385.369   D      4.526      4.522
0.004  47.09  52.02   0.44   0.11   0.08   0.25   0.01  2.860 2.220
3.130
2006  73  1     1       -416.171   380.781   D      4.522      4.522
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.860 2.220
3.130
2006  74  1   167       -415.458   392.080   D      4.577      4.522
0.055  35.55  52.20   1.61   0.40   0.33   0.91   9.00  2.860 2.220
3.130
2006  75  1   146       -403.611   389.598   D      4.570      4.522
0.048  38.54  54.44   1.18   0.30   0.32   0.66   4.55  2.860 2.220
3.130
2006  76  1    89       -415.678   388.604   D      4.522      4.522
0.000  37.50  37.50   0.00   0.09   0.07   0.20   0.01  2.860 2.220
3.130
2006  77  1     1       -416.171   380.781   D      4.522      4.522
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.860 2.220
3.130
2006  78  1     1       -416.171   380.781   D      4.522      4.522
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.860 2.220
3.130
2006  79  1     1       -416.171   380.781   D      4.522      4.522
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.860 2.220
3.130
2006  80  1     1       -416.171   380.781   D      4.522      4.522
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.860 2.220
3.130
2006  81  1     1       -416.171   380.781   D      4.522      4.522
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.860 2.220
3.130
2006  82  1   166       -403.558   390.468   D      4.551      4.522
0.030  33.20  64.88   0.55   0.14   0.12   0.31   0.80  2.860 2.220
3.130
2006  83  1   166       -403.558   390.468   D      4.632      4.522
0.110  45.83  52.75   0.45   0.11   0.11   0.25   0.50  2.860 2.220
3.130
2006  84  1   184       -404.762   391.414   D      4.522      4.522
0.000  54.30  45.03   0.33   0.09   0.06   0.19   0.00  2.860 2.220
3.130
2006  85  1     1       -416.171   380.781   D      4.522      4.522
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.860 2.220
3.130
2006  86  1   166       -403.558   390.468   D      4.522      4.522
0.000  33.72  47.19   2.29   0.59   0.71   1.34  13.88  2.860 2.220
3.130
2006  87  1     1       -416.171   380.781   D      4.522      4.522
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.860 2.220
3.130
2006  88  1     1       -416.171   380.781   D      4.522      4.522
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.860 2.220
3.130
2006  89  1   165       -404.187   390.507   D      4.522      4.522
0.000  58.71  40.07   0.45   0.13   0.06   0.28   0.12  2.860 2.220
3.130
```

```
2006  90  1   166       -403.558   390.468   D      4.526      4.522
0.004  49.88  48.29   0.92   0.23   0.17   0.51   0.01  2.860 2.220
3.130
2006  91  1   166       -403.558   390.468   D      4.508      4.508
0.000  33.46  64.37   0.79   0.23   0.17   0.50   0.28  2.820 2.180
3.010
2006  92  1   166       -403.558   390.468   D      4.509      4.508
0.002  45.13  53.48   0.69   0.17   0.11   0.39   0.03  2.820 2.180
3.010
2006  93  1     1       -416.171   380.781   D      4.508      4.508
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.820 2.180
3.010
2006  94  1     1       -416.171   380.781   D      4.508      4.508
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.820 2.180
3.010
2006  95  1     1       -416.171   380.781   D      4.508      4.508
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.820 2.180
3.010
2006  96  1   146       -403.611   389.598   D      4.511      4.508
0.004  23.74  64.16   1.27   0.32   0.23   0.72   9.55  2.820 2.180
3.010
2006  97  1   189       -412.259   392.752   D      4.576      4.508
0.069  22.31  75.33   0.86   0.22   0.16   0.47   0.65  2.820 2.180
3.010
2006  98  1   185       -414.775   392.910   D      4.509      4.508
0.002  26.83  72.12   0.52   0.13   0.06   0.28   0.04  2.820 2.180
3.010
2006  99  1   166       -403.558   390.468   D      4.508      4.508
0.000  82.91  12.83   1.82   0.46   0.49   1.05   0.42  2.820 2.180
3.010
2006 100  1     1       -416.171   380.781   D      4.508      4.508
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.820 2.180
3.010
2006 101  1     1       -416.171   380.781   D      4.508      4.508
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.820 2.180
3.010
2006 102  1     1       -416.171   380.781   D      4.508      4.508
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.820 2.180
3.010
2006 103  1     1       -416.171   380.781   D      4.508      4.508
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.820 2.180
3.010
2006 104  1     1       -416.171   380.781   D      4.508      4.508
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.820 2.180
3.010
2006 105  1   180       -407.279   391.569   D      4.534      4.508
0.027  58.67  18.80   3.70   0.93   0.87   2.10  14.93  2.820 2.180
3.010
2006 106  1   166       -403.558   390.468   D      4.515      4.508
0.008  77.91  15.80   2.10   0.53   0.59   1.19   1.88  2.820 2.180
3.010
2006 107  1   166       -403.558   390.468   D      4.510      4.508
0.002  24.06  68.66   0.92   0.23   0.03   0.47   5.62  2.820 2.180
3.010
2006 108  1     1       -416.171   380.781   D      4.508      4.508
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.820 2.180
3.010
```

```
2006 109  1     1       -416.171   380.781   D      4.508      4.508
0.000  87.50  18.75   0.00   0.04   0.02   0.08   0.04  2.820 2.180
3.010
2006 110  1   146       -403.611   389.598   D      4.514      4.508
0.007  39.27  36.67   2.94   0.74   0.83   1.67  17.88  2.820 2.180
3.010
2006 111  1   166       -403.558   390.468   D      4.513      4.508
0.005  65.62  32.58   0.88   0.22   0.20   0.49   0.01  2.820 2.180
3.010
2006 112  1   166       -403.558   390.468   D      4.508      4.508
0.000  46.92  51.99   0.45   0.14   0.07   0.30   0.00  2.820 2.180
3.010
2006 113  1   167       -415.458   392.080   D      4.522      4.508
0.014  52.55  44.16   1.10   0.28   0.11   0.59   1.20  2.820 2.180
3.010
2006 114  1   177       -409.167   391.686   D      4.619      4.508
0.111  40.61  44.28   2.04   0.51   0.44   1.16  10.96  2.820 2.180
3.010
2006 115  1   167       -415.458   392.080   D      4.601      4.508
0.094  30.81  53.24   2.11   0.53   0.61   1.19  11.52  2.820 2.180
3.010
2006 116  1   184       -404.762   391.414   D      4.508      4.508
0.001  55.52  43.79   0.36   0.09   0.06   0.20   0.00  2.820 2.180
3.010
2006 117  1   166       -403.558   390.468   D      4.511      4.508
0.004  60.81  35.19   1.34   0.34   0.37   0.76   1.18  2.820 2.180
3.010
2006 118  1     1       -416.171   380.781   D      4.508      4.508
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.820 2.180
3.010
2006 119  1   146       -403.611   389.598   D      4.558      4.508
0.050  40.70  44.50   2.34   0.59   0.58   1.33   9.97  2.820 2.180
3.010
2006 120  1   178       -408.538   391.647   D      4.596      4.508
0.089  40.35  49.39   1.91   0.48   0.51   1.08   6.28  2.820 2.180
3.010
2006 121  1     1       -416.171   380.781   D      4.587      4.587
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  3.060 2.320
3.220
2006 122  1     1       -416.171   380.781   D      4.587      4.587
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  3.060 2.320
3.220
2006 123  1   180       -407.279   391.569   D      4.651      4.587
0.065  38.71  41.77   2.70   0.68   0.67   1.53  13.95  3.060 2.320
3.220
2006 124  1   146       -403.611   389.598   D      4.599      4.587
0.012  46.68  50.71   0.64   0.16   0.13   0.36   1.32  3.060 2.320
3.220
2006 125  1   166       -403.558   390.468   D      4.607      4.587
0.020  63.34  35.45   0.42   0.11   0.09   0.24   0.35  3.060 2.320
3.220
2006 126  1   184       -404.762   391.414   D      4.587      4.587
0.000  71.91  27.41   0.26   0.07   0.03   0.15   0.00  3.060 2.320
3.220
2006 127  1     1       -416.171   380.781   D      4.587      4.587
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  3.060 2.320
3.220
```

```
2006 128  1     1       -416.171   380.781   D      4.587      4.587
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  3.060 2.320
3.220
2006 129  1     1       -416.171   380.781   D      4.587      4.587
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  3.060 2.320
3.220
2006 130  1     1       -416.171   380.781   D      4.587      4.587
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  3.060 2.320
3.220
2006 131  1    67       -408.232   386.393   D      4.642      4.587
0.055  31.23  61.63   1.41   0.35   0.39   0.80   4.19  3.060 2.320
3.220
2006 132  1   166       -403.558   390.468   D      4.630      4.587
0.043  31.96  63.11   1.06   0.27   0.27   0.60   2.73  3.060 2.320
3.220
2006 133  1   166       -403.558   390.468   D      4.782      4.587
0.195  28.06  59.83   1.67   0.42   0.45   0.94   8.63  3.060 2.320
3.220
2006 134  1   167       -415.458   392.080   D      4.743      4.587
0.156  33.41  50.95   2.14   0.54   0.61   1.21  11.14  3.060 2.320
3.220
2006 135  1   183       -405.392   391.453   D      4.763      4.587
0.176  32.84  56.39   1.68   0.42   0.47   0.95   7.24  3.060 2.320
3.220
2006 136  1   184       -404.762   391.414   D      4.689      4.587
0.103  49.27  41.40   1.78   0.45   0.49   1.00   5.61  3.060 2.320
3.220
2006 137  1   106       -404.976   387.937   D      4.740      4.587
0.153  39.21  42.93   2.44   0.61   0.69   1.38  12.74  3.060 2.320
3.220
2006 138  1    57       -405.767   385.369   D      4.639      4.587
0.052  29.65  60.38   1.52   0.38   0.40   0.86   6.81  3.060 2.320
3.220
2006 139  1   166       -403.558   390.468   D      4.595      4.587
0.008  85.03   9.23   2.23   0.56   0.60   1.27   1.09  3.060 2.320
3.220
2006 140  1   166       -403.558   390.468   D      4.591      4.587
0.004  71.50  27.02   0.74   0.19   0.14   0.41   0.00  3.060 2.320
3.220
2006 141  1   166       -403.558   390.468   D      4.587      4.587
0.000  64.16  32.66   0.73   0.19   0.15   0.44   1.83  3.060 2.320
3.220
2006 142  1     1       -416.171   380.781   D      4.587      4.587
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  3.060 2.320
3.220
2006 143  1     1       -416.171   380.781   D      4.587      4.587
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  3.060 2.320
3.220
2006 144  1     1       -416.171   380.781   D      4.587      4.587
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  3.060 2.320
3.220
2006 145  1     1       -416.171   380.781   D      4.587      4.587
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  3.060 2.320
3.220
2006 146  1     1       -416.171   380.781   D      4.587      4.587
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  3.060 2.320
3.220
```

```
2006 147  1   189       -412.259   392.752   D      4.656      4.587
0.070  59.76   9.04   4.11   1.03   1.10   2.33  22.63  3.060 2.320
3.220
2006 148  1   146       -403.611   389.598   D      4.597      4.587
0.011  71.39  12.22   3.09   0.77   0.78   1.75   9.99  3.060 2.320
3.220
2006 149  1     1       -416.171   380.781   D      4.587      4.587
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  3.060 2.320
3.220
2006 150  1   166       -403.558   390.468   D      4.588      4.587
0.001  71.44  23.35   1.76   0.44   0.35   1.00   1.68  3.060 2.320
3.220
2006 151  1   107       -404.347   387.899   D      4.587      4.587
0.000  50.00   0.00   0.00   0.13   0.08   0.30   0.00  3.060 2.320
3.220
2006 152  1     1       -416.171   380.781   D      4.505      4.505
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.180
3.060
2006 153  1     1       -416.171   380.781   D      4.505      4.505
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.180
3.060
2006 154  1   146       -403.611   389.598   D      4.506      4.505
0.001  77.76   2.85   3.65   0.92   0.86   2.07  11.89  2.810 2.180
3.060
2006 155  1   166       -403.558   390.468   D      4.550      4.505
0.045  67.18   9.27   3.44   0.86   1.01   1.95  16.29  2.810 2.180
3.060
2006 156  1   146       -403.611   389.598   D      4.566      4.505
0.061  50.79  21.80   3.55   0.89   0.96   2.01  19.99  2.810 2.180
3.060
2006 157  1   146       -403.611   389.598   D      4.510      4.505
0.005  79.74  15.39   1.69   0.42   0.43   0.95   1.39  2.810 2.180
3.060
2006 158  1   146       -403.611   389.598   D      4.583      4.505
0.078  65.36  19.48   3.42   0.86   0.85   1.94   8.09  2.810 2.180
3.060
2006 159  1     1       -416.171   380.781   D      4.505      4.505
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.180
3.060
2006 160  1   180       -407.279   391.569   D      4.564      4.505
0.059  61.53  22.33   2.56   0.64   0.60   1.45  10.89  2.810 2.180
3.060
2006 161  1   185       -414.775   392.910   D      4.508      4.505
0.003  20.21  73.12   0.43   0.11   0.09   0.24   5.80  2.810 2.180
3.060
2006 162  1   146       -403.611   389.598   D      4.536      4.505
0.031  75.41  16.21   1.83   0.46   0.48   1.04   4.57  2.810 2.180
3.060
2006 163  1     1       -416.171   380.781   D      4.505      4.505
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.810 2.180
3.060
2006 164  1   185       -414.775   392.910   D      4.505      4.505
0.000  82.42   4.88   3.26   0.85   0.96   1.93   5.31  2.810 2.180
3.060
2006 165  1   166       -403.558   390.468   D      4.506      4.505
0.001  70.21  13.91   3.30   0.83   0.39   1.71   9.65  2.810 2.180
3.060
```

```
2006 166  1   166       -403.558   390.468   D      4.513      4.505
0.009  82.93  10.19   2.14   0.54   0.43   1.21   2.56  2.810 2.180
3.060
2006 167  1   146       -403.611   389.598   D      4.534      4.505
0.029  77.56  14.53   2.40   0.60   0.53   1.36   3.01  2.810 2.180
3.060
2006 168  1   183       -405.392   391.453   D      4.540      4.505
0.035  57.84  13.52   4.12   1.03   1.03   2.34  20.12  2.810 2.180
3.060
2006 169  1   146       -403.611   389.598   D      4.531      4.505
0.026  61.49  19.72   3.62   0.91   1.05   2.06  11.15  2.810 2.180
3.060
2006 170  1    57       -405.767   385.369   D      4.510      4.505
0.005  64.09  33.14   1.11   0.28   0.28   0.62   0.48  2.810 2.180
3.060
2006 171  1   146       -403.611   389.598   D      4.542      4.505
0.037  83.04   5.89   2.48   0.62   0.56   1.41   6.00  2.810 2.180
3.060
2006 172  1   166       -403.558   390.468   D      4.569      4.505
0.064  59.20  11.42   3.98   1.00   1.14   2.26  21.00  2.810 2.180
3.060
2006 173  1   166       -403.558   390.468   D      4.557      4.505
0.052  52.20  23.16   3.09   0.78   0.88   1.75  18.14  2.810 2.180
3.060
2006 174  1   184       -404.762   391.414   D      4.506      4.505
0.001  81.11  17.13   0.90   0.23   0.15   0.50   0.00  2.810 2.180
3.060
2006 175  1    57       -405.767   385.369   D      4.505      4.505
0.000  58.17  40.53   0.68   0.18   0.07   0.37   0.00  2.810 2.180
3.060
2006 176  1   185       -414.775   392.910   D      4.546      4.505
0.041  58.45  31.74   2.48   0.62   0.68   1.41   4.63  2.810 2.180
3.060
2006 177  1   185       -414.775   392.910   D      4.546      4.505
0.041  49.22  34.14   2.75   0.69   0.78   1.56  10.86  2.810 2.180
3.060
2006 178  1   183       -405.392   391.453   D      4.685      4.505
0.180  45.73  39.50   2.45   0.61   0.67   1.39   9.65  2.810 2.180
3.060
2006 179  1   189       -412.259   392.752   D      4.505      4.505
0.000  71.70  23.71   1.98   0.52   0.55   1.18   0.58  2.810 2.180
3.060
2006 180  1   166       -403.558   390.468   D      4.569      4.505
0.064  75.94   9.95   2.54   0.64   0.69   1.44   8.80  2.810 2.180
3.060
2006 181  1   146       -403.611   389.598   D      4.567      4.505
0.062  74.64   8.03   2.80   0.70   0.73   1.59  11.50  2.810 2.180
3.060
2006 182  1   166       -403.558   390.468   D      4.408      4.401
0.006  43.35  48.85   1.72   0.43   0.42   0.98   4.25  2.500 2.000
2.750
2006 183  1   166       -403.558   390.468   D      4.410      4.401
0.009  35.16  57.84   1.36   0.34   0.34   0.77   4.20  2.500 2.000
2.750
2006 184  1   166       -403.558   390.468   D      4.409      4.401
0.007  78.11   9.73   3.21   0.81   0.84   1.82   5.49  2.500 2.000
2.750
```

```
2006 185  1   166       -403.558   390.468   D      4.494      4.401
0.093  47.55  40.52   1.91   0.48   0.50   1.08   7.96  2.500 2.000
2.750
2006 186  1   185       -414.775   392.910   D      4.402      4.401
0.001  79.97  18.67   0.69   0.17   0.10   0.39   0.00  2.500 2.000
2.750
2006 187  1     1       -416.171   380.781   D      4.401      4.401
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.500 2.000
2.750
2006 188  1   184       -404.762   391.414   D      4.454      4.401
0.053  68.71   5.99   4.59   1.15   1.27   2.60  15.67  2.500 2.000
2.750
2006 189  1   166       -403.558   390.468   D      4.434      4.401
0.033  80.06   3.42   3.39   0.85   0.92   1.92   9.43  2.500 2.000
2.750
2006 190  1   188       -412.887   392.791   D      4.473      4.401
0.071  64.26  10.46   3.82   0.96   0.92   2.17  17.42  2.500 2.000
2.750
2006 191  1   185       -414.775   392.910   D      4.402      4.401
0.000  83.16  14.60   1.22   0.32   0.21   0.71   0.01  2.500 2.000
2.750
2006 192  1   166       -403.558   390.468   D      4.406      4.401
0.005  95.75   0.80   1.67   0.42   0.43   0.94   0.01  2.500 2.000
2.750
2006 193  1     1       -416.171   380.781   D      4.401      4.401
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.500 2.000
2.750
2006 194  1   166       -403.558   390.468   D      4.401      4.401
0.000  59.50  10.33   4.08   1.04   1.08   2.34  21.34  2.500 2.000
2.750
2006 195  1   107       -404.347   387.899   D      4.401      4.401
0.000  82.39  10.80   1.70   0.59   0.62   1.34   2.12  2.500 2.000
2.750
2006 196  1   189       -412.259   392.752   D      4.418      4.401
0.017  63.36   2.24   4.88   1.23   1.23   2.77  24.28  2.500 2.000
2.750
2006 197  1   164       -404.816   390.545   D      4.514      4.401
0.112  64.04   1.93   4.81   1.21   1.22   2.73  24.06  2.500 2.000
2.750
2006 198  1   177       -409.167   391.686   D      4.443      4.401
0.042  57.99   6.49   4.82   1.21   1.25   2.73  25.51  2.500 2.000
2.750
2006 199  1   182       -406.021   391.492   D      4.448      4.401
0.046  61.62   1.42   5.08   1.27   1.31   2.88  26.41  2.500 2.000
2.750
2006 200  1    71       -405.713   386.238   D      4.492      4.401
0.090  70.05   3.41   4.24   1.06   1.06   2.40  17.78  2.500 2.000
2.750
2006 201  1     1       -416.171   380.781   D      4.401      4.401
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.500 2.000
2.750
2006 202  1   183       -405.392   391.453   D      4.498      4.401
0.097  41.98  36.41   2.93   0.73   0.81   1.66  15.48  2.500 2.000
2.750
2006 203  1    57       -405.767   385.369   D      4.425      4.401
0.024  65.45  22.45   2.43   0.61   0.67   1.38   7.02  2.500 2.000
2.750
```

```
2006 204  1   189       -412.259   392.752   D      4.419      4.401
0.018  86.58   8.13   1.92   0.48   0.43   1.08   1.37  2.500 2.000
2.750
2006 205  1   185       -414.775   392.910   D      4.474      4.401
0.073  77.22   2.19   3.41   0.86   0.88   1.93  13.51  2.500 2.000
2.750
2006 206  1   177       -409.167   391.686   D      4.447      4.401
0.046  56.43   5.34   4.85   1.22   1.34   2.75  28.07  2.500 2.000
2.750
2006 207  1     3       -414.911   380.702   D      4.422      4.401
0.020  55.06  21.60   3.70   0.93   0.90   2.09  15.72  2.500 2.000
2.750
2006 208  1     4       -417.376   381.730   D      4.404      4.401
0.003  86.31   7.75   2.63   0.66   0.46   1.45   0.73  2.500 2.000
2.750
2006 209  1   166       -403.558   390.468   D      4.404      4.401
0.002  82.27  13.94   1.96   0.50   0.25   1.06   0.03  2.500 2.000
2.750
2006 210  1   177       -409.167   391.686   D      4.559      4.401
0.157  80.88   5.01   4.44   1.11   1.07   2.51   4.98  2.500 2.000
2.750
2006 211  1   183       -405.392   391.453   D      4.446      4.401
0.045  61.75   2.01   4.73   1.19   1.37   2.69  26.27  2.500 2.000
2.750
2006 212  1   185       -414.775   392.910   D      4.407      4.401
0.006  64.88   6.39   4.57   1.15   1.09   2.60  19.33  2.500 2.000
2.750
2006 213  1   185       -414.775   392.910   D      4.416      4.388
0.028  28.40  46.69   2.16   0.54   0.37   1.23  20.62  2.460 1.970
2.680
2006 214  1   146       -403.611   389.598   D      4.564      4.388
0.176  49.77  30.16   2.90   0.73   0.78   1.64  14.01  2.460 1.970
2.680
2006 215  1    71       -405.713   386.238   D      4.420      4.388
0.032  42.80  43.99   2.31   0.58   0.62   1.30   8.41  2.460 1.970
2.680
2006 216  1   134       -411.163   390.065   D      4.400      4.388
0.012  70.68  12.27   4.10   1.03   1.08   2.33   8.51  2.460 1.970
2.680
2006 217  1   146       -403.611   389.598   D      4.440      4.388
0.052  58.37   7.24   4.78   1.20   1.22   2.71  24.47  2.460 1.970
2.680
2006 218  1   106       -404.976   387.937   D      4.447      4.388
0.059  50.24  23.68   3.73   0.94   1.06   2.12  18.24  2.460 1.970
2.680
2006 219  1     1       -416.171   380.781   D      4.388      4.388
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.460 1.970
2.680
2006 220  1     1       -416.171   380.781   D      4.388      4.388
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.460 1.970
2.680
2006 221  1   166       -403.558   390.468   D      4.394      4.388
0.006  94.63   3.02   1.15   0.29   0.26   0.64   0.01  2.460 1.970
2.680
2006 222  1    57       -405.767   385.369   D      4.413      4.388
0.025  84.78  10.44   2.10   0.53   0.41   1.18   0.56  2.460 1.970
2.680
```

```
2006 223  1   189       -412.259   392.752   D      4.402      4.388
0.014  61.26  36.10   1.30   0.33   0.17   0.70   0.14  2.460 1.970
2.680
2006 224  1   166       -403.558   390.468   D      4.407      4.388
0.020  59.08  12.34   3.92   0.98   0.57   2.21  20.89  2.460 1.970
2.680
2006 225  1   184       -404.762   391.414   D      4.451      4.388
0.064  57.86  16.88   4.15   1.04   1.10   2.35  16.62  2.460 1.970
2.680
2006 226  1    57       -405.767   385.369   D      4.402      4.388
0.014  40.53  52.11   1.76   0.44   0.40   0.99   3.78  2.460 1.970
2.680
2006 227  1     1       -416.171   380.781   D      4.388      4.388
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.460 1.970
2.680
2006 228  1   166       -403.558   390.468   D      4.394      4.388
0.007  90.09   5.22   2.02   0.51   0.35   1.11   0.70  2.460 1.970
2.680
2006 229  1   185       -414.775   392.910   D      4.401      4.388
0.014  54.76  19.80   3.34   0.84   0.91   1.89  18.46  2.460 1.970
2.680
2006 230  1   183       -405.392   391.453   D      4.657      4.388
0.270  37.07  39.89   2.98   0.75   0.85   1.69  16.76  2.460 1.970
2.680
2006 231  1   183       -405.392   391.453   D      4.583      4.388
0.195  24.43  64.16   1.63   0.41   0.45   0.92   8.00  2.460 1.970
2.680
2006 232  1     1       -416.171   380.781   D      4.436      4.388
0.049  57.64  16.82   3.90   0.98   1.00   2.21  17.44  2.460 1.970
2.680
2006 233  1     3       -414.911   380.702   D      4.411      4.388
0.023  67.27  23.69   2.09   0.52   0.48   1.18   4.77  2.460 1.970
2.680
2006 234  1     1       -416.171   380.781   D      4.388      4.388
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.460 1.970
2.680
2006 235  1   166       -403.558   390.468   D      4.392      4.388
0.005  68.98   4.04   5.36   1.35   1.59   3.04  15.64  2.460 1.970
2.680
2006 236  1   183       -405.392   391.453   D      4.436      4.388
0.049  51.95  13.66   4.53   1.14   1.30   2.57  24.85  2.460 1.970
2.680
2006 237  1    57       -405.767   385.369   D      4.412      4.388
0.024  52.82  28.03   3.03   0.76   0.84   1.71  12.81  2.460 1.970
2.680
2006 238  1   183       -405.392   391.453   D      4.400      4.388
0.012  39.59  51.84   1.24   0.31   0.35   0.70   5.97  2.460 1.970
2.680
2006 239  1   188       -412.887   392.791   D      4.507      4.388
0.119  36.56  48.72   1.41   0.35   0.41   0.80  11.75  2.460 1.970
2.680
2006 240  1   146       -403.611   389.598   D      4.425      4.388
0.037  56.40  24.37   2.61   0.66   0.77   1.48  13.71  2.460 1.970
2.680
2006 241  1     1       -416.171   380.781   D      4.388      4.388
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.460 1.970
2.680
```

```
2006 242  1     1       -416.171   380.781   D      4.388      4.388
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.460 1.970
2.680
2006 243  1   185       -414.775   392.910   D      4.503      4.388
0.115  49.72  16.58   4.37   1.10   1.05   2.48  24.70  2.460 1.970
2.680
2006 244  1   185       -414.775   392.910   D      4.445      4.380
0.064  38.13  48.39   1.18   0.30   0.31   0.67  11.02  2.440 1.950
2.630
2006 245  1   166       -403.558   390.468   D      4.454      4.380
0.074  31.87  52.78   2.21   0.56   0.64   1.25  10.69  2.440 1.950
2.630
2006 246  1   188       -412.887   392.791   D      4.399      4.380
0.019  65.15  23.92   3.02   0.76   0.80   1.72   4.63  2.440 1.950
2.630
2006 247  1   186       -414.145   392.870   D      4.387      4.380
0.006  25.56  66.52   1.48   0.37   0.38   0.84   4.85  2.440 1.950
2.630
2006 248  1     1       -416.171   380.781   D      4.380      4.380
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.440 1.950
2.630
2006 249  1   147       -415.513   391.211   D      4.380      4.380
0.000  68.75  12.50   0.00   0.32   0.24   0.72   0.00  2.440 1.950
2.630
2006 250  1   184       -404.762   391.414   D      4.407      4.380
0.027  75.71  11.13   3.15   0.79   0.89   1.79   6.54  2.440 1.950
2.630
2006 251  1   166       -403.558   390.468   D      4.387      4.380
0.007  64.99  16.49   3.20   0.80   0.90   1.82  11.81  2.440 1.950
2.630
2006 252  1     1       -416.171   380.781   D      4.380      4.380
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.440 1.950
2.630
2006 253  1     1       -416.171   380.781   D      4.380      4.380
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.440 1.950
2.630
2006 254  1   166       -403.558   390.468   D      4.435      4.380
0.055  42.83  53.51   1.17   0.29   0.24   0.65   1.31  2.440 1.950
2.630
2006 255  1   146       -403.611   389.598   D      4.421      4.380
0.040  32.06  60.60   1.28   0.32   0.35   0.72   4.68  2.440 1.950
2.630
2006 256  1   166       -403.558   390.468   D      4.381      4.380
0.000  91.08   6.95   0.92   0.24   0.23   0.53   0.00  2.440 1.950
2.630
2006 257  1     1       -416.171   380.781   D      4.380      4.380
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.440 1.950
2.630
2006 258  1   184       -404.762   391.414   D      4.383      4.380
0.002  66.87  27.02   2.27   0.57   0.38   1.27   1.61  2.440 1.950
2.630
2006 259  1   184       -404.762   391.414   D      4.390      4.380
0.010  45.25  46.61   1.76   0.44   0.37   0.99   4.56  2.440 1.950
2.630
2006 260  1     1       -416.171   380.781   D      4.380      4.380
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.440 1.950
2.630
```

```
2006 261  1   166       -403.558   390.468   D      4.381      4.380
0.001  29.02  52.15   2.38   0.60   0.68   1.36  13.80  2.440 1.950
2.630
2006 262  1   166       -403.558   390.468   D      4.390      4.380
0.009  59.25  38.15   1.19   0.30   0.28   0.67   0.16  2.440 1.950
2.630
2006 263  1   147       -415.513   391.211   D      4.380      4.380
0.000  35.71  63.69   0.00   0.15   0.11   0.34   0.01  2.440 1.950
2.630
2006 264  1   166       -403.558   390.468   D      4.442      4.380
0.062  45.22  37.03   2.66   0.67   0.71   1.51  12.21  2.440 1.950
2.630
2006 265  1     1       -416.171   380.781   D      4.380      4.380
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.440 1.950
2.630
2006 266  1     1       -416.171   380.781   D      4.380      4.380
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.440 1.950
2.630
2006 267  1     1       -416.171   380.781   D      4.380      4.380
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.440 1.950
2.630
2006 268  1   166       -403.558   390.468   D      4.391      4.380
0.010  50.24  25.81   3.59   0.90   0.91   2.04  16.51  2.440 1.950
2.630
2006 269  1   146       -403.611   389.598   D      4.383      4.380
0.003  52.90   8.54   4.83   1.21   1.21   2.75  28.55  2.440 1.950
2.630
2006 270  1     1       -416.171   380.781   D      4.380      4.380
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.440 1.950
2.630
2006 271  1   166       -403.558   390.468   D      4.392      4.380
0.012  50.52  21.22   4.06   1.02   0.82   2.30  20.07  2.440 1.950
2.630
2006 272  1     1       -416.171   380.781   D      4.380      4.380
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.440 1.950
2.630
2006 273  1   166       -403.558   390.468   D      4.381      4.380
0.000  48.17  24.94   3.53   0.89   1.06   2.01  19.46  2.440 1.950
2.630
2006 274  1   187       -413.516   392.831   D      4.413      4.408
0.005  46.27  33.78   2.92   0.73   0.82   1.66  13.83  2.520 2.000
2.750
2006 275  1   146       -403.611   389.598   D      4.798      4.408
0.391  42.67  37.47   2.86   0.72   0.79   1.61  13.88  2.520 2.000
2.750
2006 276  1   166       -403.558   390.468   D      4.441      4.408
0.033  55.54  29.38   2.73   0.69   0.59   1.52   9.55  2.520 2.000
2.750
2006 277  1   167       -415.458   392.080   D      4.451      4.408
0.044  34.21  42.76   2.85   0.72   0.74   1.62  17.10  2.520 2.000
2.750
2006 278  1     1       -416.171   380.781   D      4.408      4.408
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.520 2.000
2.750
2006 279  1   185       -414.775   392.910   D      4.553      4.408
0.146  49.89  27.85   3.39   0.85   0.89   1.91  15.22  2.520 2.000
2.750
```

```
2006 280  1   183       -405.392   391.453   D      4.472      4.408
0.064  45.36  35.25   3.03   0.76   0.77   1.71  13.11  2.520 2.000
2.750
2006 281  1   180       -407.279   391.569   D      4.436      4.408
0.028  39.79  43.03   2.72   0.68   0.62   1.54  11.61  2.520 2.000
2.750
2006 282  1     1       -416.171   380.781   D      4.408      4.408
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.520 2.000
2.750
2006 283  1     1       -416.171   380.781   D      4.408      4.408
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.520 2.000
2.750
2006 284  1     1       -416.171   380.781   D      4.408      4.408
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.520 2.000
2.750
2006 285  1     1       -416.171   380.781   D      4.408      4.408
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.520 2.000
2.750
2006 286  1   164       -404.816   390.545   D      4.686      4.408
0.278  31.94  48.37   2.62   0.66   0.71   1.48  14.20  2.520 2.000
2.750
2006 287  1   146       -403.611   389.598   D      4.589      4.408
0.182  24.15  66.40   1.47   0.37   0.39   0.83   6.39  2.520 2.000
2.750
2006 288  1     1       -416.171   380.781   D      4.408      4.408
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.520 2.000
2.750
2006 289  1   146       -403.611   389.598   D      4.409      4.408
0.001  55.94  27.93   2.56   0.64   0.63   1.45  10.82  2.520 2.000
2.750
2006 290  1     1       -416.171   380.781   D      4.408      4.408
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.520 2.000
2.750
2006 291  1     1       -416.171   380.781   D      4.408      4.408
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.520 2.000
2.750
2006 292  1     1       -416.171   380.781   D      4.408      4.408
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.520 2.000
2.750
2006 293  1   187       -413.516   392.831   D      4.690      4.408
0.282  38.42  49.61   1.54   0.39   0.40   0.87   8.77  2.520 2.000
2.750
2006 294  1   146       -403.611   389.598   D      4.410      4.408
0.002  33.47  42.91   2.87   0.72   0.86   1.63  17.52  2.520 2.000
2.750
2006 295  1     1       -416.171   380.781   D      4.408      4.408
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.520 2.000
2.750
2006 296  1     1       -416.171   380.781   D      4.408      4.408
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.520 2.000
2.750
2006 297  1   166       -403.558   390.468   D      4.408      4.408
0.000  41.06  57.21   0.87   0.22   0.12   0.46   0.04  2.520 2.000
2.750
2006 298  1   146       -403.611   389.598   D      4.429      4.408
0.021  56.56  25.83   3.00   0.75   0.70   1.70  11.46  2.520 2.000
2.750
```

```
2006 299  1   166       -403.558   390.468   D      4.429      4.408
0.021  31.17  54.77   2.21   0.55   0.58   1.25   9.46  2.520 2.000
2.750
2006 300  1     1       -416.171   380.781   D      4.408      4.408
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.520 2.000
2.750
2006 301  1     1       -416.171   380.781   D      4.408      4.408
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.520 2.000
2.750
2006 302  1     1       -416.171   380.781   D      4.408      4.408
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.520 2.000
2.750
2006 303  1   166       -403.558   390.468   D      4.409      4.408
0.001  30.57  65.51   1.06   0.27   0.19   0.60   1.83  2.520 2.000
2.750
2006 304  1   166       -403.558   390.468   D      4.610      4.408
0.203  26.67  66.75   1.30   0.33   0.31   0.73   3.91  2.520 2.000
2.750
2006 305  1     1       -416.171   380.781   D      4.559      4.559
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.970 2.300
3.280
2006 306  1     1       -416.171   380.781   D      4.559      4.559
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.970 2.300
3.280
2006 307  1   166       -403.558   390.468   D      4.562      4.559
0.003  26.66  68.15   0.94   0.24   0.24   0.53   3.24  2.970 2.300
3.280
2006 308  1     1       -416.171   380.781   D      4.559      4.559
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.970 2.300
3.280
2006 309  1     1       -416.171   380.781   D      4.559      4.559
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.970 2.300
3.280
2006 310  1     1       -416.171   380.781   D      4.559      4.559
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.970 2.300
3.280
2006 311  1     1       -416.171   380.781   D      4.559      4.559
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.970 2.300
3.280
2006 312  1     1       -416.171   380.781   D      4.559      4.559
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.970 2.300
3.280
2006 313  1   166       -403.558   390.468   D      4.714      4.559
0.155  36.10  49.25   1.89   0.47   0.56   1.07  10.66  2.970 2.300
3.280
2006 314  1   167       -415.458   392.080   D      4.572      4.559
0.013  38.64  59.48   0.58   0.15   0.10   0.32   0.74  2.970 2.300
3.280
2006 315  1     1       -416.171   380.781   D      4.559      4.559
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.970 2.300
3.280
2006 316  1     1       -416.171   380.781   D      4.559      4.559
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.970 2.300
3.280
2006 317  1     1       -416.171   380.781   D      4.559      4.559
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.970 2.300
3.280
```

```
2006 318  1     1       -416.171   380.781   D      4.559      4.559
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.970 2.300
3.280
2006 319  1     1       -416.171   380.781   D      4.559      4.559
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.970 2.300
3.280
2006 320  1     1       -416.171   380.781   D      4.559      4.559
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.970 2.300
3.280
2006 321  1   166       -403.558   390.468   D      4.766      4.559
0.207  25.62  68.30   1.29   0.33   0.31   0.73   3.43  2.970 2.300
3.280
2006 322  1   166       -403.558   390.468   D      4.561      4.559
0.003  29.10  67.71   1.04   0.26   0.17   0.57   1.14  2.970 2.300
3.280
2006 323  1     1       -416.171   380.781   D      4.559      4.559
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.970 2.300
3.280
2006 324  1   184       -404.762   391.414   D      4.568      4.559
0.009  27.64  64.97   1.33   0.33   0.29   0.75   4.67  2.970 2.300
3.280
2006 325  1   166       -403.558   390.468   D      4.573      4.559
0.014  22.89  71.92   1.00   0.25   0.21   0.55   3.18  2.970 2.300
3.280
2006 326  1   166       -403.558   390.468   D      4.575      4.559
0.016  30.05  65.37   1.38   0.35   0.13   0.73   1.99  2.970 2.300
3.280
2006 327  1     1       -416.171   380.781   D      4.559      4.559
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.970 2.300
3.280
2006 328  1     1       -416.171   380.781   D      4.559      4.559
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.970 2.300
3.280
2006 329  1    48       -413.323   385.838   D      4.725      4.559
0.167  29.52  62.79   1.38   0.35   0.33   0.78   4.86  2.970 2.300
3.280
2006 330  1   166       -403.558   390.468   D      4.984      4.559
0.425  37.58  49.71   1.88   0.47   0.48   1.06   8.83  2.970 2.300
3.280
2006 331  1   166       -403.558   390.468   D      4.559      4.559
0.000  23.71  65.46   1.39   0.36   0.35   0.81   7.99  2.970 2.300
3.280
2006 332  1     4       -417.376   381.730   D      4.570      4.559
0.011  19.23  74.72   0.91   0.23   0.15   0.51   4.25  2.970 2.300
3.280
2006 333  1   179       -407.909   391.608   D      4.651      4.559
0.092  36.82  41.59   2.73   0.69   0.71   1.55  15.91  2.970 2.300
3.280
2006 334  1     1       -416.171   380.781   D      4.559      4.559
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.970 2.300
3.280
2006 335  1     1       -416.171   380.781   D      4.514      4.514
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.830 2.240
3.240
2006 336  1   146       -403.611   389.598   D      4.514      4.514
0.001  37.12  39.21   2.90   0.73   0.76   1.65  17.64  2.830 2.240
3.240
```

```
2006 337  1     1       -416.171   380.781   D      4.514      4.514
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.830 2.240
3.240
2006 338  1     1       -416.171   380.781   D      4.514      4.514
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.830 2.240
3.240
2006 339  1     1       -416.171   380.781   D      4.514      4.514
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.830 2.240
3.240
2006 340  1   174       -411.054   391.804   D      4.595      4.514
0.081  38.45  38.27   2.87   0.72   0.68   1.63  17.37  2.830 2.240
3.240
2006 341  1   107       -404.347   387.899   D      4.517      4.514
0.004  18.79  76.08   0.81   0.20   0.19   0.46   3.46  2.830 2.240
3.240
2006 342  1     1       -416.171   380.781   D      4.514      4.514
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.830 2.240
3.240
2006 343  1   166       -403.558   390.468   D      4.533      4.514
0.020  30.12  63.73   1.50   0.38   0.25   0.82   3.20  2.830 2.240
3.240
2006 344  1     1       -416.171   380.781   D      4.514      4.514
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.830 2.240
3.240
2006 345  1     1       -416.171   380.781   D      4.514      4.514
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.830 2.240
3.240
2006 346  1     1       -416.171   380.781   D      4.514      4.514
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.830 2.240
3.240
2006 347  1     1       -416.171   380.781   D      4.514      4.514
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.830 2.240
3.240
2006 348  1     1       -416.171   380.781   D      4.514      4.514
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.830 2.240
3.240
2006 349  1     1       -416.171   380.781   D      4.514      4.514
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.830 2.240
3.240
2006 350  1     1       -416.171   380.781   D      4.514      4.514
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.830 2.240
3.240
2006 351  1   187       -413.516   392.831   D      4.515      4.514
0.001  23.16  74.79   0.73   0.18   0.21   0.41   0.52  2.830 2.240
3.240
2006 352  1     1       -416.171   380.781   D      4.514      4.514
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00  2.830 2.240
3.240
2006 353  1    57       -405.767   385.369   D      4.572      4.514
0.059  30.29  52.25   2.19   0.55   0.65   1.24  12.82  2.830 2.240
3.240
2006 354  1   185       -414.775   392.910   D      4.571      4.514
0.058  38.68  37.14   3.03   0.76   0.67   1.72  17.99  2.830 2.240
3.240
2006 355  1   185       -414.775   392.910   D      4.589      4.514
0.075  26.09  68.64   1.24   0.31   0.27   0.69   2.76  2.830 2.240
3.240
```

2006 356 1   1   -416.171   380.781   D   4.514   4.514
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00 2.830 2.240
3.240
2006 357 1   1   -416.171   380.781   D   4.514   4.514
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00 2.830 2.240
3.240
2006 358 1   1   -416.171   380.781   D   4.514   4.514
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00 2.830 2.240
3.240
2006 359 1   1   -416.171   380.781   D   4.514   4.514
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00 2.830 2.240
3.240
2006 360 1   1   -416.171   380.781   D   4.514   4.514
0.000   0.00   0.00   0.00   0.00   0.00   0.00   0.00 2.830 2.240
3.240
2006 361 1   189   -412.259   392.752   D   4.746   4.514
0.232 27.42 61.83   1.56   0.39   0.41   0.88   7.51 2.830 2.240
3.240
2006 362 1   4   -417.376   381.730   D   4.550   4.514
0.037 36.76 43.88   2.45   0.62   0.51   1.39 14.40 2.830 2.240
3.240
2006 363 1   166   -403.558   390.468   D   4.536   4.514
0.023 31.74 49.23   2.36   0.59   0.69   1.34 14.05 2.830 2.240
3.240

 --- Ranked Daily Visibility Change ---
START TIME
% of Modeled Extinction by Species   Small Large SSalt
YEAR DAY HR RECEPTOR   COORDINATES (km) TYPE DV(Total)   DV(BKG)
DELTA DV %_SO4 %_NO3   %_OC   %_EC %_PMC %_PMF %_NO2 F(RH) F(RH)
F(RH)
2006 330 1   166   -403.558   390.468   D   4.984   4.559
0.425 37.58 49.71   1.88   0.47   0.48   1.06   8.83 2.970 2.300
3.280   1
2006 275 1   146   -403.611   389.598   D   4.798   4.408
0.391 42.67 37.47   2.86   0.72   0.79   1.61 13.88 2.520 2.000
2.750   2
2006 38 1   186   -414.145   392.870   D   4.885   4.507
0.378 27.38 59.43   1.84   0.46   0.52   1.04   9.33 2.810 2.220
3.200   3
2006 293 1   187   -413.516   392.831   D   4.690   4.408
0.282 38.42 49.61   1.54   0.39   0.40   0.87   8.77 2.520 2.000
2.750   4
2006 286 1   164   -404.816   390.545   D   4.686   4.408
0.278 31.94 48.37   2.62   0.66   0.71   1.48 14.20 2.520 2.000
2.750   5
2006 64 1   180   -407.279   391.569   D   4.800   4.522
0.278 26.75 60.36   1.77   0.44   0.49   1.00   9.19 2.860 2.220
3.130   6
2006 230 1   183   -405.392   391.453   D   4.657   4.388
0.270 37.07 39.89   2.98   0.75   0.85   1.69 16.76 2.460 1.970
2.680   7
2006 361 1   189   -412.259   392.752   D   4.746   4.514
0.232 27.42 61.83   1.56   0.39   0.41   0.88   7.51 2.830 2.240
3.240   8
2006 39 1   167   -415.458   392.080   D   4.731   4.507

```
0.224  21.51  71.49   1.17   0.29   0.30   0.66   4.57  2.810 2.220
3.200    9
2006 321  1   166       -403.558   390.468   D      4.766      4.559
0.207  25.62  68.30   1.29   0.33   0.31   0.73   3.43  2.970 2.300
3.280   10
2006 304  1   166       -403.558   390.468   D      4.610      4.408
0.203  26.67  66.75   1.30   0.33   0.31   0.73   3.91  2.520 2.000
2.750   11
2006 231  1   183       -405.392   391.453   D      4.583      4.388
0.195  24.43  64.16   1.63   0.41   0.45   0.92   8.00  2.460 1.970
2.680   12
2006 133  1   166       -403.558   390.468   D      4.782      4.587
0.195  28.06  59.83   1.67   0.42   0.45   0.94   8.63  3.060 2.320
3.220   13
2006 287  1   146       -403.611   389.598   D      4.589      4.408
0.182  24.15  66.40   1.47   0.37   0.39   0.83   6.39  2.520 2.000
2.750   14
2006 178  1   183       -405.392   391.453   D      4.685      4.505
0.180  45.73  39.50   2.45   0.61   0.67   1.39   9.65  2.810 2.180
3.060   15
2006 214  1   146       -403.611   389.598   D      4.564      4.388
0.176  49.77  30.16   2.90   0.73   0.78   1.64  14.01  2.460 1.970
2.680   16
2006 135  1   183       -405.392   391.453   D      4.763      4.587
0.176  32.84  56.39   1.68   0.42   0.47   0.95   7.24  3.060 2.320
3.220   17
2006 329  1    48       -413.323   385.838   D      4.725      4.559
0.167  29.52  62.79   1.38   0.35   0.33   0.78   4.86  2.970 2.300
3.280   18
2006  61  1   146       -403.611   389.598   D      4.686      4.522
0.164  32.52  63.51   1.07   0.27   0.30   0.61   1.73  2.860 2.220
3.130   19
2006 210  1   177       -409.167   391.686   D      4.559      4.401
0.157  80.88   5.01   4.44   1.11   1.07   2.51   4.98  2.500 2.000
2.750   20
2006 134  1   167       -415.458   392.080   D      4.743      4.587
0.156  33.41  50.95   2.14   0.54   0.61   1.21  11.14  3.060 2.320
3.220   21
2006 313  1   166       -403.558   390.468   D      4.714      4.559
0.155  36.10  49.25   1.89   0.47   0.56   1.07  10.66  2.970 2.300
3.280   22

 --- Number of days with Delta-Deciview  =>   0.50:         0
 --- Number of days with Delta-Deciview  =>   1.00:         0
 ---             Largest Delta-Deciview  =              0.425

***********************************************************************
***********************************************************
                                              CALPOST  Version 6.221
Level 080724
***********************************************************************
***********************************************************


                                                     Run-Length
VISIBILITY
```

VISIB BOESNCFG

(deciview)

RECEPTOR	COORDINATES (km)		TYPE	DV(Total)	DV(BKG)	DELTA DV
166	-403.558	390.468	D	4.508	4.482	0.026

--- Number of recs with Delta-Deciview > 0.10: 0
--- Largest Delta-Deciview = 0.026

****
****
CALPOST Version 6.221 Level 080724
****
****

SUMMARY SECTION

VISIB BOESNCFG

(1/Mega-m)

RECEPTOR	COORDINATES (km)		TYPE	PEAK (YEAR,DAY,START TIME)	FOR RANK	FOR AVERAGE PERIOD
166	-403.558	390.468	DISCRETE	1.6460E+01 (2006,330,0100)	RANK 1	24 HOUR
180	-407.279	391.569	DISCRETE	1.6161E+01 (2006,064,0100)	RANK 2	24 HOUR
178	-408.538	391.647	DISCRETE	1.6139E+01 (2006,330,0100)	RANK 3	24 HOUR
166	-403.558	390.468	DISCRETE	1.6106E+01 (2006,321,0100)	RANK 4	24 HOUR

****
RUN MESSAGES EXTRACTED FROM THE DOS WINDOW
****

CALPOST Application Completed
Last Period Processed ENDS at:
Year: 2006 Month: 12 Day: 30 Julian day: 364 Hour: 5 Second: 0