

CALPUFF UMC 2003 BART Evaluation
MINGO UMC REFINED 6km MET FIELD
REFINED ANALYSIS

----- Run title (3 lines) -----

CALPOST MODEL CONTROL FILE

INPUT GROUP: 0 -- Input and Output File Names

Input Files

File	Default File Name
Conc/Dep Flux File	MODEL.DAT ! MODDAT = ../calpuff/outputs/2003/umceref/umcm2003.con !
Relative Humidity File	VISB.DAT ! VISDAT = ../calpuff/outputs/2003/umceref/umcm2003.vis !
Background Data File	BACK.DAT * BACKDAT = *
Transmissometer or Nephelometer Data File or DATSAV Weather Data File or Prognostic Weather File	VSRN.DAT * VSRDAT = *

Output Files

File	Default File Name
List File	CALPOST.LST ! PSTLST = umcm2003.lst !

Pathname for Timeseries Files (blank) * TSPATH = *
(activate with exclamation points only if
providing NON-BLANK character string)

Pathname for Plot Files (blank) * PLPATH = *
(activate with exclamation points only if
providing NON-BLANK character string)

User Character String (U) to augment default filenames
(activate with exclamation points only if
providing NON-BLANK character string)

Timeseries	TSERIES_ASPEC_ttHR_CONC_TSUNAM.DAT
Peak Value	PEAKVAL_ASPEC_ttHR_CONC_TSUNAM.DAT

* TSUNAM = *

Top Nth Rank Plot RANK(ALL)_ASPEC_ttHR_CONC_TUNAM.DAT
or RANK(ii)_ASPEC_ttHR_CONC_TUNAM.GRD

* TUNAM = *

Exceedance Plot EXCEED_ASPEC_ttHR_CONC_XUNAM.DAT
or EXCEED_ASPEC_ttHR_CONC_XUNAM.GRD

* XUNAM = *

Echo Plot
(Specific Days)

yyyy_Mmm_Ddd_hh00(UTCszzzz)_L00_ASPEC_ttHR_CONC.DAT
or yyyy_Mmm_Ddd_hh00(UTCszzzz)_L00_ASPEC_ttHR_CONC.GRD

Visibility Plot DAILY_VISIB_VUNAM.DAT * VUNAM =VTEST *
(Daily Peak Summary)

Auxiliary Output Files

File	Default File Name
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Visibility Change	DELVIS.DAT	* DVISDAT = deciview.dat *
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All file names will be converted to lower case if LCFILES = T
Otherwise, if LCFILES = F, file names will be converted to UPPER CASE
T = lower case ! LCFILES = T !
F = UPPER CASE

NOTE: (1) file/path names can be up to 132 characters in length
NOTE: (2) Filenames for ALL PLOT and TIMESERIES FILES are constructed
using a template that includes a pathname, user-supplied
character(s), and context-specific strings, where
ASPEC = Species Name
CONC = CONC Or WFLX Or DFLX Or TFLX
tt = Averaging Period (e.g. 03)
ii = Rank (e.g. 02)
hh = Hour(ending) in LST
szzzz = LST time zone shift (EST is -0500)
yyyy = Year(LST)
mm = Month(LST)
dd = day of month (LST)
are determined internally based on selections made below.
If a path or user-supplied character(s) are supplied, each
must contain at least 1 non-blank character.

!END!

INPUT GROUP: 1 -- General run control parameters

Option to run all periods found
in the met. file(s) (METRUN) Default: 0 ! METRUN = 1 !

METRUN = 0 - Run period explicitly defined below

METRUN = 1 - Run all periods in CALPUFF data file(s)

Starting date: Year (ISYR) -- No default ! ISYR = 2003 !
(used only if Month (ISMO) -- No default ! ISMO = 0 !
METRUN = 0) Day (ISDY) -- No default ! ISDY = 0 !
Hour (ISHR) -- No default ! ISHR = 0 !

Number of hours to process (NHRS) -- No default ! NHRS = 0 !

Process every hour of data?(NREP) -- Default: 1 ! NREP = 1 !
(1 = every hour processed,
2 = every 2nd hour processed,
5 = every 5th hour 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 !
 $X(\text{new}) = X(\text{old}) * A + B$ 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 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 !

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 = -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

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

Identify the Base Time Zone for the CALPUFF simulation
(BTZONE) -- No default * BTZONE = 0.*

Particle growth curve f(RH) for hygroscopic species
(MFRH) -- Default: 2 ! MFRH = 2 !

- 1 = IWAQM (1998) f(RH) curve (originally used with MVISBK=1)
- 2 = FLAG (2000) f(RH) tabulation
- 3 = EPA (2003) f(RH) tabulation

Maximum relative humidity (%) used in particle growth curve
(RHMAX) -- Default: 98 ! RHMAX = 95.0 !

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 = F !
Include COARSE PARTICLES? (LVPMC) -- Default: T ! LVPMC = F !
Include FINE PARTICLES? (LVPMF) -- Default: T ! LVPMF = T !
Include ELEMENTAL CARBON? (LVEC) -- Default: T ! LVEC = F !

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 = PM10 !

Extinction Efficiency (1/Mm per ug/m**3)

MODELED particulate species:

PM COARSE (EELPMC) -- Default: 0.6 ! EELPMC = 0.6 !
PM FINE (EELPMF) -- Default: 1.0 ! EELPMF = 1.0 !

BACKGROUND particulate species:

PM COARSE (EELMCBK) -- Default: 0.6 ! EELMCBK = 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 !

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: 2 ! MVISBK = 2 !

- 1 = Supply single light extinction and hygroscopic fraction
 - Hourly F(RH) adjustment applied to hygroscopic background and modeled sulfate and nitrate
- 2 = Compute extinction from speciated PM measurements (A)
 - Hourly F(RH) adjustment applied to observed and modeled sulfate and nitrate
 - F(RH) factor is capped at F(RHMAX)
- 3 = Compute extinction from speciated PM measurements (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 = Compute extinction from speciated PM measurements
 - FLAG monthly RH adjustment factor applied to observed 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

Additional inputs used for MVISBK = 1:

Background light extinction (1/Mm)
(BEXTBK) -- No default ! BEXTBK = 12.0 !

Percentage of particles affected by relative humidity
(RHFRAC) -- No default ! RHFRAC = 10.0 !

Additional inputs used for MVISBK = 6:

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 = 3.3, 3.0, 2.8, 2.6,
3.0, 3.2, 3.3, 3.5,
3.5, 3.1, 3.1, 3.3 !

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 = 690230 ,80020 ,80140 !
(TZONE) -- No default
! TZONE = 0.0 ,0.0 ,0.0 !

Additional inputs used for MVISBK = 2,3,6,7:

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 = 0.23, 0.23, 0.23, 0.23,
0.23, 0.23, 0.23, 0.23,
0.23, 0.23, 0.23, 0.23 !
(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 = 3.0, 3.0, 3.0, 3.0,
3.0, 3.0, 3.0, 3.0,
3.0, 3.0, 3.0, 3.0 !

(BKOC) -- No default ! BKOC = 1.4, 1.4, 1.4, 1.4,
1.4, 1.4, 1.4, 1.4,
1.4, 1.4, 1.4, 1.4 !
(BKSOIL) -- No default ! BKSOIL= 0.5, 0.5, 0.5, 0.5,
0.5, 0.5, 0.5, 0.5,
0.5, 0.5, 0.5, 0.5 !
(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 = 2,3,5,6,7:

Extinction due to Rayleigh scattering is added (1/Mm)
(BEXTRAY) -- Default: 10.0 ! BEXTRAY = 10.0 !

!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 = 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

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

Averaging time(s) reported

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

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

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

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

User-specified averaging time in hours - results for
an averaging time of NAVG hours are reported for

NAVG greater than 0:
(NAVG) -- Default: 0 ! NAVG = 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 = F !

3) Top 'N' table for each averaging time selected
[List file or Plot file]
(LTOPN) -- Default: F ! LTOPN = F !

-- Number of 'Top-N' values at each receptor selected (NTOP must be <= 4)
(NTOP) -- Default: 4 ! NTOP = 1 !

-- Specific ranks of 'Top-N' values reported (NTOP values must be entered)
(ITOP(4) array) -- Default: ! ITOP = 1 !
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: 0.5

Threshold for 1-hr averages (THRESH1) ! THRESH1 = 1.000E01 !

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 = F !

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 = 0 !

- 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 = T !

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

!END!

CALPUFF UMC 2003 BART Evaluation
MINGO REFINED 6km MET FIELD
REFINED ANALYSIS

----- Run title (3 lines) -----

CALPOST MODEL CONTROL FILE

INPUT GROUP: 0 -- Input and Output File Names

Input Files

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Relative Humidity File	VISB.DAT	! VISDAT = ../calpuff/outputs/2003/umcref/umcm2003.vis !
Background Data File	BACK.DAT	* BACKDAT = *
Transmissometer or Nephelometer Data File or DATSAV Weather Data File or Prognostic Weather File	VSRN.DAT	* VSRDAT = *

Output Files

File	Default File Name	
List File	CALPOST.LST	! PSTLST = umcm2003m6.lst !

Pathname for Timeseries Files (blank) * TSPATH = *
(activate with exclamation points only if
providing NON-BLANK character string)

Pathname for Plot Files (blank) * PLPATH = *
(activate with exclamation points only if
providing NON-BLANK character string)

User Character String (U) to augment default filenames
(activate with exclamation points only if
providing NON-BLANK character string)

Timeseries	TSERIES_ASPEC_ttHR_CONC_TSUNAM.DAT
Peak Value	PEAKVAL_ASPEC_ttHR_CONC_TSUNAM.DAT

* TSUNAM = *

Top Nth Rank Plot RANK(ALL)_ASPEC_ttHR_CONC_TUNAM.DAT
or RANK(ii)_ASPEC_ttHR_CONC_TUNAM.GRD

* TUNAM = *

Exceedance Plot EXCEED_ASPEC_ttHR_CONC_XUNAM.DAT
or EXCEED_ASPEC_ttHR_CONC_XUNAM.GRD

* XUNAM = *

Echo Plot
(Specific Days)

yyyy_Mmm_Ddd_hh00(UTCszzzz)_L00_ASPEC_ttHR_CONC.DAT
or yyyy_Mmm_Ddd_hh00(UTCszzzz)_L00_ASPEC_ttHR_CONC.GRD

Visibility Plot DAILY_VISIB_VUNAM.DAT * VUNAM =VTEST *
(Daily Peak Summary)

Auxiliary Output Files

File	Default File Name
------	-------------------

Visibility Change	DELVIS.DAT	* DVISDAT = deciview.dat *
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All file names will be converted to lower case if LCFILES = T
Otherwise, if LCFILES = F, file names will be converted to UPPER CASE
T = lower case ! LCFILES = T !
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NOTE: (1) file/path names can be up to 132 characters in length
NOTE: (2) Filenames for ALL PLOT and TIMESERIES FILES are constructed
using a template that includes a pathname, user-supplied
character(s), and context-specific strings, where
ASPEC = Species Name
CONC = CONC Or WFLX Or DFLX Or TFLX
tt = Averaging Period (e.g. 03)
ii = Rank (e.g. 02)
hh = Hour(ending) in LST
szzzz = LST time zone shift (EST is -0500)
yyyy = Year(LST)
mm = Month(LST)
dd = day of month (LST)
are determined internally based on selections made below.
If a path or user-supplied character(s) are supplied, each
must contain at least 1 non-blank character.

!END!

INPUT GROUP: 1 -- General run control parameters

Option to run all periods found
in the met. file(s) (METRUN) Default: 0 ! METRUN = 1 !

METRUN = 0 - Run period explicitly defined below

METRUN = 1 - Run all periods in CALPUFF data file(s)

Starting date: Year (ISYR) -- No default ! ISYR = 2003 !
(used only if Month (ISMO) -- No default ! ISMO = 0 !
METRUN = 0) Day (ISDY) -- No default ! ISDY = 0 !
Hour (ISHR) -- No default ! ISHR = 0 !

Number of hours to process (NHRS) -- No default ! NHRS = 0 !

Process every hour of data?(NREP) -- Default: 1 ! NREP = 1 !
(1 = every hour processed,
2 = every 2nd hour processed,
5 = every 5th hour 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 !
 $X(\text{new}) = X(\text{old}) * A + B$ 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 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 !

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 = -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

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

Identify the Base Time Zone for the CALPUFF simulation
(BTZONE) -- No default * BTZONE = 0.*

Particle growth curve f(RH) for hygroscopic species
(MFRH) -- Default: 2 ! MFRH = 2 !

- 1 = IWAQM (1998) f(RH) curve (originally used with MVISBK=1)
- 2 = FLAG (2000) f(RH) tabulation
- 3 = EPA (2003) f(RH) tabulation

Maximum relative humidity (%) used in particle growth curve
(RHMAX) -- Default: 98 ! RHMAX = 95.0 !

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 = F !
Include COARSE PARTICLES? (LVPMC) -- Default: T ! LVPMC = F !
Include FINE PARTICLES? (LVPMF) -- Default: T ! LVPMF = T !
Include ELEMENTAL CARBON? (LVEC) -- Default: T ! LVEC = F !

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 = PM10 !

Extinction Efficiency (1/Mm per ug/m**3)

MODELED particulate species:

PM COARSE (EETPMC) -- Default: 0.6 ! EETPMC = 0.6 !
PM FINE (EETPMF) -- Default: 1.0 ! EETPMF = 1.0 !

BACKGROUND particulate species:

PM COARSE (EETMCBK) -- Default: 0.6 ! EETMCBK = 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 !

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: 2 ! MVISBK = 6 !

- 1 = Supply single light extinction and hygroscopic fraction
 - Hourly F(RH) adjustment applied to hygroscopic background and modeled sulfate and nitrate
- 2 = Compute extinction from speciated PM measurements (A)
 - Hourly F(RH) adjustment applied to observed and modeled sulfate and nitrate
 - F(RH) factor is capped at F(RHMAX)
- 3 = Compute extinction from speciated PM measurements (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 = Compute extinction from speciated PM measurements
 - FLAG monthly RH adjustment factor applied to observed 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

Additional inputs used for MVISBK = 1:

Background light extinction (1/Mm)
(BEXTBK) -- No default ! BEXTBK = 12.0 !

Percentage of particles affected by relative humidity
(RHFRAC) -- No default ! RHFRAC = 10.0 !

Additional inputs used for MVISBK = 6:

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 = 3.3, 3.0, 2.8, 2.6,
3.0, 3.2, 3.3, 3.5,
3.5, 3.1, 3.1, 3.3 !

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 = 690230 ,80020 ,80140 !
(TZONE) -- No default
! TZONE = 0.0 ,0.0 ,0.0 !

Additional inputs used for MVISBK = 2,3,6,7:

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 = 0.23, 0.23, 0.23, 0.23,
0.23, 0.23, 0.23, 0.23,
0.23, 0.23, 0.23, 0.23 !
(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 = 3.0, 3.0, 3.0, 3.0,
3.0, 3.0, 3.0, 3.0,
3.0, 3.0, 3.0, 3.0 !

(BKOC) -- No default ! BKOC = 1.4, 1.4, 1.4, 1.4,
1.4, 1.4, 1.4, 1.4,
1.4, 1.4, 1.4, 1.4 !
(BKSOIL) -- No default ! BKSOIL= 0.5, 0.5, 0.5, 0.5,
0.5, 0.5, 0.5, 0.5,
0.5, 0.5, 0.5, 0.5 !
(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 = 2,3,5,6,7:

Extinction due to Rayleigh scattering is added (1/Mm)
(BEXTRAY) -- Default: 10.0 ! BEXTRAY = 10.0 !

!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 = 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

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

Averaging time(s) reported

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

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

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

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

User-specified averaging time in hours - results for
an averaging time of NAVG hours are reported for

NAVG greater than 0:
(NAVG) -- Default: 0 ! NAVG = 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 = F !

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 = 1 !

-- Specific ranks of 'Top-N' values reported (NTOP values must be entered)
(ITOP(4) array) -- Default: ! ITOP = 1 !
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 = T !

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

-- Default: 0.5

Threshold for 1-hr averages (THRESH1) ! THRESH1 = 1.000E01 !

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 = F !

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 = 0 !

- 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!

CALPUFF UMC 2003 BART Evaluation
HERC REFINED 6km MET FIELD
REFINED ANALYSIS

----- Run title (3 lines) -----

CALPOST MODEL CONTROL FILE

INPUT GROUP: 0 -- Input and Output File Names

Input Files

File Default File Name

Conc/Dep Flux File MODEL.DAT ! MODDAT = ../calpuff/outputs/2003/umcref/umch2003.con !
Relative Humidity File VISB.DAT ! VISDAT = ../calpuff/outputs/2003/umcref/umch2003.vis !
Background Data File BACK.DAT * BACKDAT = *
Transmissometer or VSRN.DAT * VSRDAT = *
Nephelometer Data File or
DATSAV Weather Data File or
Prognostic Weather File

Output Files

File Default File Name

List File CALPOST.LST ! PSTLST = umch2003.lst !

Pathname for Timeseries Files (blank) * TSPATH = *
(activate with exclamation points only if
providing NON-BLANK character string)

Pathname for Plot Files (blank) * PLPATH = *
(activate with exclamation points only if
providing NON-BLANK character string)

User Character String (U) to augment default filenames
(activate with exclamation points only if
providing NON-BLANK character string)

Timeseries TSERIES_ASPEC_ttHR_CONC_TSUNAM.DAT
Peak Value PEAKVAL_ASPEC_ttHR_CONC_TSUNAM.DAT

* TSUNAM = *

Top Nth Rank Plot RANK(ALL)_ASPEC_ttHR_CONC_TUNAM.DAT
 or RANK(ii)_ASPEC_ttHR_CONC_TUNAM.GRD

* TUNAM = *

Exceedance Plot EXCEED_ASPEC_ttHR_CONC_XUNAM.DAT
or EXCEED_ASPEC_ttHR_CONC_XUNAM.GRD

* XUNAM = *

Echo Plot
(Specific Days)

yyyy_Mmm_Ddd_hh00(UTCszzzz)_L00_ASPEC_ttHR_CONC.DAT
or yyyy_Mmm_Ddd_hh00(UTCszzzz)_L00_ASPEC_ttHR_CONC.GRD

Visibility Plot DAILY_VISIB_VUNAM.DAT * VUNAM =VTEST *
(Daily Peak Summary)

Auxiliary Output Files

File	Default File Name
------	-------------------

Visibility Change	DELVIS.DAT	* DVISDAT = deciview.dat *
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All file names will be converted to lower case if LCFILES = T
Otherwise, if LCFILES = F, file names will be converted to UPPER CASE
T = lower case ! LCFILES = T !
F = UPPER CASE

NOTE: (1) file/path names can be up to 132 characters in length
NOTE: (2) Filenames for ALL PLOT and TIMESERIES FILES are constructed
using a template that includes a pathname, user-supplied
character(s), and context-specific strings, where
ASPEC = Species Name
CONC = CONC Or WFLX Or DFLX Or TFLX
tt = Averaging Period (e.g. 03)
ii = Rank (e.g. 02)
hh = Hour(ending) in LST
szzzz = LST time zone shift (EST is -0500)
yyyy = Year(LST)
mm = Month(LST)
dd = day of month (LST)
are determined internally based on selections made below.
If a path or user-supplied character(s) are supplied, each
must contain at least 1 non-blank character.

!END!

INPUT GROUP: 1 -- General run control parameters

Option to run all periods found
in the met. file(s) (METRUN) Default: 0 ! METRUN = 1 !

METRUN = 0 - Run period explicitly defined below

METRUN = 1 - Run all periods in CALPUFF data file(s)

Starting date: Year (ISYR) -- No default ! ISYR = 2003 !
(used only if Month (ISMO) -- No default ! ISMO = 0 !
METRUN = 0) Day (ISDY) -- No default ! ISDY = 0 !
Hour (ISHR) -- No default ! ISHR = 0 !

Number of hours to process (NHRS) -- No default ! NHRS = 0 !

Process every hour of data?(NREP) -- Default: 1 ! NREP = 1 !
(1 = every hour processed,
2 = every 2nd hour processed,
5 = every 5th hour 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 !
 $X(\text{new}) = X(\text{old}) * A + B$ 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 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 !

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 = -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

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

Identify the Base Time Zone for the CALPUFF simulation
(BTZONE) -- No default * BTZONE = 0.*

Particle growth curve f(RH) for hygroscopic species
(MFRH) -- Default: 2 ! MFRH = 2 !

- 1 = IWAQM (1998) f(RH) curve (originally used with MVISBK=1)
- 2 = FLAG (2000) f(RH) tabulation
- 3 = EPA (2003) f(RH) tabulation

Maximum relative humidity (%) used in particle growth curve
(RHMAX) -- Default: 98 ! RHMAX = 95.0 !

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 = F !
Include COARSE PARTICLES? (LVPMC) -- Default: T ! LVPMC = F !
Include FINE PARTICLES? (LVPMF) -- Default: T ! LVPMF = T !
Include ELEMENTAL CARBON? (LVEC) -- Default: T ! LVEC = F !

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 = PM10!

Extinction Efficiency (1/Mm per ug/m**3)

MODELED particulate species:

PM COARSE (EELPMC) -- Default: 0.6 ! EELPMC = 0.6 !
PM FINE (EELPMF) -- Default: 1.0 ! EELPMF = 1.0 !

BACKGROUND particulate species:

PM COARSE (EELMCBK) -- Default: 0.6 ! EELMCBK = 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 !

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: 2 ! MVISBK = 2 !

- 1 = Supply single light extinction and hygroscopic fraction
 - Hourly F(RH) adjustment applied to hygroscopic background and modeled sulfate and nitrate
- 2 = Compute extinction from speciated PM measurements (A)
 - Hourly F(RH) adjustment applied to observed and modeled sulfate and nitrate
 - F(RH) factor is capped at F(RHMAX)
- 3 = Compute extinction from speciated PM measurements (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 = Compute extinction from speciated PM measurements
 - FLAG monthly RH adjustment factor applied to observed 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

Additional inputs used for MVISBK = 1:

Background light extinction (1/Mm)
(BEXTBK) -- No default ! BEXTBK = 12.0 !

Percentage of particles affected by relative humidity
(RHFRAC) -- No default ! RHFRAC = 10.0 !

Additional inputs used for MVISBK = 6:

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 = 3.2, 2.9, 2.7, 2.7,
3.3, 3.3, 3.3, 3.3,
3.4, 3.1, 3.1, 3.3 !

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 = 690230 ,80020 ,80140 !
(TZONE) -- No default
! TZONE = 0.0 ,0.0 ,0.0 !

Additional inputs used for MVISBK = 2,3,6,7:

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 = 0.23, 0.23, 0.23, 0.23,
0.23, 0.23, 0.23, 0.23,
0.23, 0.23, 0.23, 0.23 !
(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 = 3.0, 3.0, 3.0, 3.0,
3.0, 3.0, 3.0, 3.0,
3.0, 3.0, 3.0, 3.0 !

(BKOC) -- No default ! BKOC = 1.4, 1.4, 1.4, 1.4,
1.4, 1.4, 1.4, 1.4,
1.4, 1.4, 1.4, 1.4 !
(BKSOIL) -- No default ! BKSOIL= 0.5, 0.5, 0.5, 0.5,
0.5, 0.5, 0.5, 0.5,
0.5, 0.5, 0.5, 0.5 !
(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 = 2,3,5,6,7:

Extinction due to Rayleigh scattering is added (1/Mm)
(BEXTRAY) -- Default: 10.0 ! BEXTRAY = 10.0 !

!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 = 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

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

Averaging time(s) reported

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

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

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

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

User-specified averaging time in hours - results for
an averaging time of NAVG hours are reported for

NAVG greater than 0:
(NAVG) -- Default: 0 ! NAVG = 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 = F !

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 = 1 !

-- Specific ranks of 'Top-N' values reported (NTOP values must be entered)
(ITOP(4) array) -- Default: ! ITOP = 1 !
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 = T !

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

-- Default: 0.5

Threshold for 1-hr averages (THRESH1) ! THRESH1 = 1.000E01 !

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 = F !

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 = 0 !

- 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!

CALPUFF UMC 2003 BART Evaluation
HERCULES REFINED 6km MET FIELD
REFINED ANALYSIS

----- Run title (3 lines) -----

CALPOST MODEL CONTROL FILE

INPUT GROUP: 0 -- Input and Output File Names

Input Files

File	Default File Name	
Conc/Dep Flux File	MODEL.DAT	! MODDAT = ../calpuff/outputs/2003/umcref/umch2003.con !
Relative Humidity File	VISB.DAT	! VISDAT = ../calpuff/outputs/2003/umcref/umch2003.vis !
Background Data File	BACK.DAT	* BACKDAT = *
Transmissometer or Nephelometer Data File or DATSAV Weather Data File or Prognostic Weather File	VSRN.DAT	* VSRDAT = *

Output Files

File	Default File Name	
List File	CALPOST.LST	! PSTLST = umch2003m6.lst !

Pathname for Timeseries Files (blank) * TSPATH = *
(activate with exclamation points only if
providing NON-BLANK character string)

Pathname for Plot Files (blank) * PLPATH = *
(activate with exclamation points only if
providing NON-BLANK character string)

User Character String (U) to augment default filenames
(activate with exclamation points only if
providing NON-BLANK character string)

Timeseries	TSERIES_ASPEC_ttHR_CONC_TSUNAM.DAT
Peak Value	PEAKVAL_ASPEC_ttHR_CONC_TSUNAM.DAT

* TSUNAM = *

Top Nth Rank Plot RANK(ALL)_ASPEC_ttHR_CONC_TUNAM.DAT
or RANK(ii)_ASPEC_ttHR_CONC_TUNAM.GRD

* TUNAM = *

Exceedance Plot EXCEED_ASPEC_ttHR_CONC_XUNAM.DAT
or EXCEED_ASPEC_ttHR_CONC_XUNAM.GRD

* XUNAM = *

Echo Plot
(Specific Days)

yyyy_Mmm_Ddd_hh00(UTCszzzz)_L00_ASPEC_ttHR_CONC.DAT
or yyyy_Mmm_Ddd_hh00(UTCszzzz)_L00_ASPEC_ttHR_CONC.GRD

Visibility Plot DAILY_VISIB_VUNAM.DAT * VUNAM =VTEST *
(Daily Peak Summary)

Auxiliary Output Files

File	Default File Name
------	-------------------

Visibility Change	DELVIS.DAT	* DVISDAT = deciview.dat *
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All file names will be converted to lower case if LCFILES = T
Otherwise, if LCFILES = F, file names will be converted to UPPER CASE
T = lower case ! LCFILES = T !
F = UPPER CASE

NOTE: (1) file/path names can be up to 132 characters in length
NOTE: (2) Filenames for ALL PLOT and TIMESERIES FILES are constructed
using a template that includes a pathname, user-supplied
character(s), and context-specific strings, where
ASPEC = Species Name
CONC = CONC Or WFLX Or DFLX Or TFLX
tt = Averaging Period (e.g. 03)
ii = Rank (e.g. 02)
hh = Hour(ending) in LST
szzzz = LST time zone shift (EST is -0500)
yyyy = Year(LST)
mm = Month(LST)
dd = day of month (LST)
are determined internally based on selections made below.
If a path or user-supplied character(s) are supplied, each
must contain at least 1 non-blank character.

!END!

INPUT GROUP: 1 -- General run control parameters

Option to run all periods found
in the met. file(s) (METRUN) Default: 0 !METRUN = 1 !

METRUN = 0 - Run period explicitly defined below

METRUN = 1 - Run all periods in CALPUFF data file(s)

Starting date: Year (ISYR) -- No default ! ISYR = 2003 !
(used only if Month (ISMO) -- No default ! ISMO = 0 !
METRUN = 0) Day (ISDY) -- No default ! ISDY = 0 !
Hour (ISHR) -- No default ! ISHR = 0 !

Number of hours to process (NHRS) -- No default ! NHRS = 0 !

Process every hour of data?(NREP) -- Default: 1 ! NREP = 1 !
(1 = every hour processed,
2 = every 2nd hour processed,
5 = every 5th hour 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 !
 $X(\text{new}) = X(\text{old}) * A + B$ 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 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 !

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 = -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

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

Identify the Base Time Zone for the CALPUFF simulation
(BTZONE) -- No default * BTZONE = 0.*

Particle growth curve f(RH) for hygroscopic species
(MFRH) -- Default: 2 ! MFRH = 2 !

- 1 = IWAQM (1998) f(RH) curve (originally used with MVISBK=1)
- 2 = FLAG (2000) f(RH) tabulation
- 3 = EPA (2003) f(RH) tabulation

Maximum relative humidity (%) used in particle growth curve
(RHMAX) -- Default: 98 ! RHMAX = 95.0 !

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 = F !
Include COARSE PARTICLES? (LVPMC) -- Default: T ! LVPMC = F !
Include FINE PARTICLES? (LVPMF) -- Default: T ! LVPMF = T !
Include ELEMENTAL CARBON? (LVEC) -- Default: T ! LVEC = F !

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 = PM10!

Extinction Efficiency (1/Mm per ug/m**3)

MODELED particulate species:

PM COARSE (EELPMC) -- Default: 0.6 ! EELPMC = 0.6 !
PM FINE (EELPMF) -- Default: 1.0 ! EELPMF = 1.0 !

BACKGROUND particulate species:

PM COARSE (EELMCBK) -- Default: 0.6 ! EELMCBK = 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 !

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: 2 ! MVISBK = 6 !

- 1 = Supply single light extinction and hygroscopic fraction
 - Hourly F(RH) adjustment applied to hygroscopic background and modeled sulfate and nitrate
- 2 = Compute extinction from speciated PM measurements (A)
 - Hourly F(RH) adjustment applied to observed and modeled sulfate and nitrate
 - F(RH) factor is capped at F(RHMAX)
- 3 = Compute extinction from speciated PM measurements (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 = Compute extinction from speciated PM measurements
 - FLAG monthly RH adjustment factor applied to observed 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

Additional inputs used for MVISBK = 1:

Background light extinction (1/Mm)
(BEXTBK) -- No default ! BEXTBK = 12.0 !

Percentage of particles affected by relative humidity
(RHFRAC) -- No default ! RHFRAC = 10.0 !

Additional inputs used for MVISBK = 6:

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 = 3.2, 2.9, 2.7, 2.7,
3.3, 3.3, 3.3, 3.3,
3.4, 3.1, 3.1, 3.3 !

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 = 690230 ,80020 ,80140 !
(TZONE) -- No default
! TZONE = 0.0 ,0.0 ,0.0 !

Additional inputs used for MVISBK = 2,3,6,7:

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 = 0.23, 0.23, 0.23, 0.23,
0.23, 0.23, 0.23, 0.23,
0.23, 0.23, 0.23, 0.23 !
(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 = 3.0, 3.0, 3.0, 3.0,
3.0, 3.0, 3.0, 3.0,
3.0, 3.0, 3.0, 3.0 !

(BKOC) -- No default ! BKOC = 1.4, 1.4, 1.4, 1.4,
1.4, 1.4, 1.4, 1.4,
1.4, 1.4, 1.4, 1.4 !
(BKSOIL) -- No default ! BKSOIL= 0.5, 0.5, 0.5, 0.5,
0.5, 0.5, 0.5, 0.5,
0.5, 0.5, 0.5, 0.5 !
(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 = 2,3,5,6,7:

Extinction due to Rayleigh scattering is added (1/Mm)
(BEXTRAY) -- Default: 10.0 ! BEXTRAY = 10.0 !

!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 = 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

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

Averaging time(s) reported

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

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

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

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

User-specified averaging time in hours - results for
an averaging time of NAVG hours are reported for

NAVG greater than 0:
(NAVG) -- Default: 0 ! NAVG = 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 = F !

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 = 1 !

-- Specific ranks of 'Top-N' values reported (NTOP values must be entered)
(ITOP(4) array) -- Default: ! ITOP = 1 !
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 = T !

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

-- Default: 0.5
Threshold for 1-hr averages (THRESH1) ! THRESH1 = 1.000E01 !
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 = F !

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 = 0 !

- 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!

CALPUFF UMC 2003 BART Evaluation
UPPER BUFFALO REFINED 6km MET FIELD
REFINED ANALYSIS

----- Run title (3 lines) -----

CALPOST MODEL CONTROL FILE

INPUT GROUP: 0 -- Input and Output File Names

Input Files

File	Default File Name	
Conc/Dep Flux File	MODEL.DAT	! MODDAT = ../calpuff/outputs/2003/umcref/umcub2003.con !
Relative Humidity File	VISB.DAT	! VISDAT = ../calpuff/outputs/2003/umcref/umcub2003.vis !
Background Data File	BACK.DAT	* BACKDAT = *
Transmissometer or Nephelometer Data File or DATSAV Weather Data File or Prognostic Weather File	VSRN.DAT	* VSRDAT = *

Output Files

File	Default File Name	
List File	CALPOST.LST	! PSTLST = umcub2003.lst !

Pathname for Timeseries Files (blank) * TSPATH = *
(activate with exclamation points only if
providing NON-BLANK character string)

Pathname for Plot Files (blank) * PLPATH = *
(activate with exclamation points only if
providing NON-BLANK character string)

User Character String (U) to augment default filenames
(activate with exclamation points only if
providing NON-BLANK character string)

Timeseries	TSERIES_ASPEC_ttHR_CONC_TSUNAM.DAT
Peak Value	PEAKVAL_ASPEC_ttHR_CONC_TSUNAM.DAT

* TSUNAM = *

Top Nth Rank Plot RANK(ALL)_ASPEC_ttHR_CONC_TUNAM.DAT
or RANK(ii)_ASPEC_ttHR_CONC_TUNAM.GRD

* TUNAM = *

Exceedance Plot EXCEED_ASPEC_ttHR_CONC_XUNAM.DAT
or EXCEED_ASPEC_ttHR_CONC_XUNAM.GRD

* XUNAM = *

Echo Plot
(Specific Days)

yyyy_Mmm_Ddd_hh00(UTCszzzz)_L00_ASPEC_ttHR_CONC.DAT
or yyyy_Mmm_Ddd_hh00(UTCszzzz)_L00_ASPEC_ttHR_CONC.GRD

Visibility Plot DAILY_VISIB_VUNAM.DAT * VUNAM =VTEST *
(Daily Peak Summary)

Auxiliary Output Files

File	Default File Name
------	-------------------

Visibility Change	DELVIS.DAT	* DVISDAT = deciview.dat *
-------------------	------------	----------------------------

All file names will be converted to lower case if LCFILES = T
Otherwise, if LCFILES = F, file names will be converted to UPPER CASE
T = lower case ! LCFILES = T !
F = UPPER CASE

NOTE: (1) file/path names can be up to 132 characters in length
NOTE: (2) Filenames for ALL PLOT and TIMESERIES FILES are constructed
using a template that includes a pathname, user-supplied
character(s), and context-specific strings, where
ASPEC = Species Name
CONC = CONC Or WFLX Or DFLX Or TFLX
tt = Averaging Period (e.g. 03)
ii = Rank (e.g. 02)
hh = Hour(ending) in LST
szzzz = LST time zone shift (EST is -0500)
yyyy = Year(LST)
mm = Month(LST)
dd = day of month (LST)
are determined internally based on selections made below.
If a path or user-supplied character(s) are supplied, each
must contain at least 1 non-blank character.

!END!

INPUT GROUP: 1 -- General run control parameters

Option to run all periods found
in the met. file(s) (METRUN) Default: 0 ! METRUN = 1 !

METRUN = 0 - Run period explicitly defined below

METRUN = 1 - Run all periods in CALPUFF data file(s)

Starting date: Year (ISYR) -- No default ! ISYR = 2003 !
(used only if Month (ISMO) -- No default ! ISMO = 0 !
METRUN = 0) Day (ISDY) -- No default ! ISDY = 0 !
Hour (ISHR) -- No default ! ISHR = 0 !

Number of hours to process (NHRS) -- No default ! NHRS = 0 !

Process every hour of data?(NREP) -- Default: 1 ! NREP = 1 !
(1 = every hour processed,
2 = every 2nd hour processed,
5 = every 5th hour 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 !
 $X(\text{new}) = X(\text{old}) * A + B$ 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 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 !

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 = -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

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

Identify the Base Time Zone for the CALPUFF simulation
(BTZONE) -- No default * BTZONE = 0.*

Particle growth curve f(RH) for hygroscopic species
(MFRH) -- Default: 2 ! MFRH = 2 !

- 1 = IWAQM (1998) f(RH) curve (originally used with MVISBK=1)
- 2 = FLAG (2000) f(RH) tabulation
- 3 = EPA (2003) f(RH) tabulation

Maximum relative humidity (%) used in particle growth curve
(RHMAX) -- Default: 98 ! RHMAX = 95.0 !

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 = F !
Include COARSE PARTICLES? (LVPMC) -- Default: T ! LVPMC = F !
Include FINE PARTICLES? (LVPMF) -- Default: T ! LVPMF = T !
Include ELEMENTAL CARBON? (LVEC) -- Default: T ! LVEC = F !

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 = PM10 !

Extinction Efficiency (1/Mm per ug/m**3)

MODELED particulate species:

PM COARSE (EELPMC) -- Default: 0.6 ! EELPMC = 0.6 !
PM FINE (EELPMF) -- Default: 1.0 ! EELPMF = 1.0 !

BACKGROUND particulate species:

PM COARSE (EELMCBK) -- Default: 0.6 ! EELMCBK = 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 !

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: 2 ! MVISBK = 2 !

- 1 = Supply single light extinction and hygroscopic fraction
 - Hourly F(RH) adjustment applied to hygroscopic background and modeled sulfate and nitrate
- 2 = Compute extinction from speciated PM measurements (A)
 - Hourly F(RH) adjustment applied to observed and modeled sulfate and nitrate
 - F(RH) factor is capped at F(RHMAX)
- 3 = Compute extinction from speciated PM measurements (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 = Compute extinction from speciated PM measurements
 - FLAG monthly RH adjustment factor applied to observed 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

Additional inputs used for MVISBK = 1:

Background light extinction (1/Mm)
(BEXTBK) -- No default ! BEXTBK = 12.0 !

Percentage of particles affected by relative humidity
(RHFRAC) -- No default ! RHFRAC = 10.0 !

Additional inputs used for MVISBK = 6:

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 = 3.3, 3.0, 2.7, 2.8,
3.4, 3.4, 3.4, 3.4,
3.6, 3.3, 3.2, 3.3 !

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 = 690230 ,80020 ,80140 !
(TZONE) -- No default
! TZONE = 0.0 ,0.0 ,0.0 !

Additional inputs used for MVISBK = 2,3,6,7:

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 = 0.23, 0.23, 0.23, 0.23,
0.23, 0.23, 0.23, 0.23,
0.23, 0.23, 0.23, 0.23 !
(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 = 3.0, 3.0, 3.0, 3.0,
3.0, 3.0, 3.0, 3.0,
3.0, 3.0, 3.0, 3.0 !

(BKOC) -- No default ! BKOC = 1.4, 1.4, 1.4, 1.4,
1.4, 1.4, 1.4, 1.4,
1.4, 1.4, 1.4, 1.4 !
(BKSOIL) -- No default ! BKSOIL= 0.5, 0.5, 0.5, 0.5,
0.5, 0.5, 0.5, 0.5,
0.5, 0.5, 0.5, 0.5 !
(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 = 2,3,5,6,7:

Extinction due to Rayleigh scattering is added (1/Mm)
(BEXTRAY) -- Default: 10.0 ! BEXTRAY = 10.0 !

!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 = 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

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

Averaging time(s) reported

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

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

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

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

User-specified averaging time in hours - results for
an averaging time of NAVG hours are reported for

NAVG greater than 0:
(NAVG) -- Default: 0 ! NAVG = 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 = F !

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 = 1 !

-- Specific ranks of 'Top-N' values reported (NTOP values must be entered)
(ITOP(4) array) -- Default: ! ITOP = 1 !
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 = T !

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

-- Default: 0.5

Threshold for 1-hr averages (THRESH1) ! THRESH1 = 1.000E01 !

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 = F !

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 = 0 !

- 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!

CALPUFF UMC 2003 BART Evaluation
UPPER BUFFALO REFINED 6km MET FIELD
REFINED ANALYSIS

----- Run title (3 lines) -----

CALPOST MODEL CONTROL FILE

INPUT GROUP: 0 -- Input and Output File Names

Input Files

File Default File Name

Conc/Dep Flux File MODEL.DAT ! MODDAT = ../calpuff/outputs/2003/umcref/umcub2003.con !
Relative Humidity File VISB.DAT ! VISDAT = ../calpuff/outputs/2003/umcref/umcub2003.vis !
Background Data File BACK.DAT * BACKDAT = *
Transmissometer or VSRN.DAT * VSRDAT = *
Nephelometer Data File or
DATSAV Weather Data File or
Prognostic Weather File

Output Files

File Default File Name

List File CALPOST.LST ! PSTLST = umcub2003m6.lst !

Pathname for Timeseries Files (blank) * TSPATH = *
(activate with exclamation points only if
providing NON-BLANK character string)

Pathname for Plot Files (blank) * PLPATH = *
(activate with exclamation points only if
providing NON-BLANK character string)

User Character String (U) to augment default filenames
(activate with exclamation points only if
providing NON-BLANK character string)

Timeseries TSERIES_ASPEC_ttHR_CONC_TSUNAM.DAT
Peak Value PEAKVAL_ASPEC_ttHR_CONC_TSUNAM.DAT

* TSUNAM = *

Top Nth Rank Plot RANK(ALL)_ASPEC_ttHR_CONC_TUNAM.DAT
or RANK(ii)_ASPEC_ttHR_CONC_TUNAM.GRD

* TUNAM = *

Exceedance Plot EXCEED_ASPEC_ttHR_CONC_XUNAM.DAT
or EXCEED_ASPEC_ttHR_CONC_XUNAM.GRD

* XUNAM = *

Echo Plot
(Specific Days)

yyyy_Mmm_Ddd_hh00(UTCszzzz)_L00_ASPEC_ttHR_CONC.DAT
or yyyy_Mmm_Ddd_hh00(UTCszzzz)_L00_ASPEC_ttHR_CONC.GRD

Visibility Plot DAILY_VISIB_VUNAM.DAT * VUNAM =VTEST *
(Daily Peak Summary)

Auxiliary Output Files

File	Default File Name
------	-------------------

Visibility Change	DELVIS.DAT	* DVISDAT = deciview.dat *
-------------------	------------	----------------------------

All file names will be converted to lower case if LCFILES = T
Otherwise, if LCFILES = F, file names will be converted to UPPER CASE
T = lower case ! LCFILES = T !
F = UPPER CASE

NOTE: (1) file/path names can be up to 132 characters in length
NOTE: (2) Filenames for ALL PLOT and TIMESERIES FILES are constructed
using a template that includes a pathname, user-supplied
character(s), and context-specific strings, where
ASPEC = Species Name
CONC = CONC Or WFLX Or DFLX Or TFLX
tt = Averaging Period (e.g. 03)
ii = Rank (e.g. 02)
hh = Hour(ending) in LST
szzzz = LST time zone shift (EST is -0500)
yyyy = Year(LST)
mm = Month(LST)
dd = day of month (LST)
are determined internally based on selections made below.
If a path or user-supplied character(s) are supplied, each
must contain at least 1 non-blank character.

!END!

INPUT GROUP: 1 -- General run control parameters

Option to run all periods found
in the met. file(s) (METRUN) Default: 0 !METRUN = 1 !

METRUN = 0 - Run period explicitly defined below

METRUN = 1 - Run all periods in CALPUFF data file(s)

Starting date: Year (ISYR) -- No default ! ISYR = 2003 !
(used only if Month (ISMO) -- No default ! ISMO = 0 !
METRUN = 0) Day (ISDY) -- No default ! ISDY = 0 !
Hour (ISHR) -- No default ! ISHR = 0 !

Number of hours to process (NHRS) -- No default ! NHRS = 0 !

Process every hour of data?(NREP) -- Default: 1 ! NREP = 1 !
(1 = every hour processed,
2 = every 2nd hour processed,
5 = every 5th hour 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 !
 $X(\text{new}) = X(\text{old}) * A + B$ 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 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 !

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 = -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

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

Identify the Base Time Zone for the CALPUFF simulation
(BTZONE) -- No default * BTZONE = 0.*

Particle growth curve f(RH) for hygroscopic species
(MFRH) -- Default: 2 ! MFRH = 2 !

- 1 = IWAQM (1998) f(RH) curve (originally used with MVISBK=1)
- 2 = FLAG (2000) f(RH) tabulation
- 3 = EPA (2003) f(RH) tabulation

Maximum relative humidity (%) used in particle growth curve
(RHMAX) -- Default: 98 ! RHMAX = 95.0 !

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 = F !
Include COARSE PARTICLES? (LVPMC) -- Default: T ! LVPMC = F !
Include FINE PARTICLES? (LVPMF) -- Default: T ! LVPMF = T !
Include ELEMENTAL CARBON? (LVEC) -- Default: T ! LVEC = F !

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 = PM10 !

Extinction Efficiency (1/Mm per ug/m**3)

MODELED particulate species:

PM COARSE (EELPMC) -- Default: 0.6 ! EELPMC = 0.6 !
PM FINE (EELPMF) -- Default: 1.0 ! EELPMF = 1.0 !

BACKGROUND particulate species:

PM COARSE (EELMCBK) -- Default: 0.6 ! EELMCBK = 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 !

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: 2 ! MVISBK = 6 !

- 1 = Supply single light extinction and hygroscopic fraction
 - Hourly F(RH) adjustment applied to hygroscopic background and modeled sulfate and nitrate
- 2 = Compute extinction from speciated PM measurements (A)
 - Hourly F(RH) adjustment applied to observed and modeled sulfate and nitrate
 - F(RH) factor is capped at F(RHMAX)
- 3 = Compute extinction from speciated PM measurements (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 = Compute extinction from speciated PM measurements
 - FLAG monthly RH adjustment factor applied to observed 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

Additional inputs used for MVISBK = 1:

Background light extinction (1/Mm)
(BEXTBK) -- No default ! BEXTBK = 12.0 !

Percentage of particles affected by relative humidity
(RHFRAC) -- No default ! RHFRAC = 10.0 !

Additional inputs used for MVISBK = 6:

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 = 3.3, 3.0, 2.7, 2.8,
3.4, 3.4, 3.4, 3.4,
3.6, 3.3, 3.2, 3.3 !

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 = 690230 ,80020 ,80140 !
(TZONE) -- No default
! TZONE = 0.0 ,0.0 ,0.0 !

Additional inputs used for MVISBK = 2,3,6,7:

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 = 0.23, 0.23, 0.23, 0.23,
0.23, 0.23, 0.23, 0.23,
0.23, 0.23, 0.23, 0.23 !
(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 = 3.0, 3.0, 3.0, 3.0,
3.0, 3.0, 3.0, 3.0,
3.0, 3.0, 3.0, 3.0 !

(BKOC) -- No default ! BKOC = 1.4, 1.4, 1.4, 1.4,
1.4, 1.4, 1.4, 1.4,
1.4, 1.4, 1.4, 1.4 !
(BKSOIL) -- No default ! BKSOIL= 0.5, 0.5, 0.5, 0.5,
0.5, 0.5, 0.5, 0.5,
0.5, 0.5, 0.5, 0.5 !
(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 = 2,3,5,6,7:

Extinction due to Rayleigh scattering is added (1/Mm)
(BEXTRAY) -- Default: 10.0 ! BEXTRAY = 10.0 !

!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 = 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

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

Averaging time(s) reported

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

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

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

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

User-specified averaging time in hours - results for
an averaging time of NAVG hours are reported for

NAVG greater than 0:
(NAVG) -- Default: 0 ! NAVG = 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 = F !

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 = 1 !

-- Specific ranks of 'Top-N' values reported (NTOP values must be entered)
(ITOP(4) array) -- Default: ! ITOP = 1 !
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 = T !

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

-- Default: 0.5

Threshold for 1-hr averages (THRESH1) ! THRESH1 = 1.000E01 !

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 = F !

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 = 0 !

- 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!

CALPUFF NOR 2003 BART Evaluation
MAMMOTH CAVE CENRAP 6km MET FIELD
SCREENING ANALYSIS

----- Run title (3 lines) -----

CALPOST MODEL CONTROL FILE

INPUT GROUP: 0 -- Input and Output File Names

Input Files

File	Default File Name	
Conc/Dep Flux File	MODEL.DAT	! MODDAT = ../calpuff/outputs/nor/nrcmc2003q4.con !
Relative Humidity File	VISB.DAT	! VISDAT = ../calpuff/outputs/nor/nrcmc2003q4.vis !
Background Data File	BACK.DAT	* BACKDAT = *
Transmissometer or Nephelometer Data File or DATSAV Weather Data File or Prognostic Weather File	VSRN.DAT	* VSRDAT = *

Output Files

File	Default File Name	
List File	CALPOST.LST	! PSTLST = nrcmc2003q4.lst !

Pathname for Timeseries Files (blank) * TSPATH = *
(activate with exclamation points only if
providing NON-BLANK character string)

Pathname for Plot Files (blank) * PLPATH = *
(activate with exclamation points only if
providing NON-BLANK character string)

User Character String (U) to augment default filenames
(activate with exclamation points only if
providing NON-BLANK character string)

Timeseries	TSERIES_ASPEC_ttHR_CONC_TSUNAM.DAT
Peak Value	PEAKVAL_ASPEC_ttHR_CONC_TSUNAM.DAT

* TSUNAM = *

Top Nth Rank Plot RANK(ALL)_ASPEC_ttHR_CONC_TUNAM.DAT
or RANK(ii)_ASPEC_ttHR_CONC_TUNAM.GRD

* TUNAM = *

Exceedance Plot EXCEED_ASPEC_ttHR_CONC_XUNAM.DAT
or EXCEED_ASPEC_ttHR_CONC_XUNAM.GRD

* XUNAM = *

Echo Plot
(Specific Days)

yyyy_Mmm_Ddd_hh00(UTCszzzz)_L00_ASPEC_ttHR_CONC.DAT
or yyyy_Mmm_Ddd_hh00(UTCszzzz)_L00_ASPEC_ttHR_CONC.GRD

Visibility Plot DAILY_VISIB_VUNAM.DAT * VUNAM =VTEST *
(Daily Peak Summary)

Auxiliary Output Files

File	Default File Name
------	-------------------

Visibility Change	DELVIS.DAT	* DVISDAT = deciview.dat *
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All file names will be converted to lower case if LCFILES = T
Otherwise, if LCFILES = F, file names will be converted to UPPER CASE
T = lower case ! LCFILES = T !
F = UPPER CASE

NOTE: (1) file/path names can be up to 132 characters in length
NOTE: (2) Filenames for ALL PLOT and TIMESERIES FILES are constructed
using a template that includes a pathname, user-supplied
character(s), and context-specific strings, where
ASPEC = Species Name
CONC = CONC Or WFLX Or DFLX Or TFLX
tt = Averaging Period (e.g. 03)
ii = Rank (e.g. 02)
hh = Hour(ending) in LST
szzzz = LST time zone shift (EST is -0500)
yyyy = Year(LST)
mm = Month(LST)
dd = day of month (LST)
are determined internally based on selections made below.
If a path or user-supplied character(s) are supplied, each
must contain at least 1 non-blank character.

!END!

INPUT GROUP: 1 -- General run control parameters

Option to run all periods found
in the met. file(s) (METRUN) Default: 0 ! METRUN = 1 !

METRUN = 0 - Run period explicitly defined below

METRUN = 1 - Run all periods in CALPUFF data file(s)

Starting date: Year (ISYR) -- No default ! ISYR = 2003 !
(used only if Month (ISMO) -- No default ! ISMO = 0 !
METRUN = 0) Day (ISDY) -- No default ! ISDY = 0 !
Hour (ISHR) -- No default ! ISHR = 0 !

Number of hours to process (NHRS) -- No default ! NHRS = 0 !

Process every hour of data?(NREP) -- Default: 1 ! NREP = 1 !
(1 = every hour processed,
2 = every 2nd hour processed,
5 = every 5th hour 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 !
 $X(\text{new}) = X(\text{old}) * A + B$ 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 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 !

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 = -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

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

Identify the Base Time Zone for the CALPUFF simulation
(BTZONE) -- No default * BTZONE = 0.*

Particle growth curve f(RH) for hygroscopic species
(MFRH) -- Default: 2 ! MFRH = 2 !

- 1 = IWAQM (1998) f(RH) curve (originally used with MVISBK=1)
- 2 = FLAG (2000) f(RH) tabulation
- 3 = EPA (2003) f(RH) tabulation

Maximum relative humidity (%) used in particle growth curve
(RHMAX) -- Default: 98 ! RHMAX = 95.0 !

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 = F !
Include COARSE PARTICLES? (LVPMC) -- Default: T ! LVPMC = T !
Include FINE PARTICLES? (LVPMF) -- Default: T ! LVPMF = T !
Include ELEMENTAL CARBON? (LVEC) -- Default: T ! LVEC = F !

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 = PMF !

Extinction Efficiency (1/Mm per ug/m**3)

MODELED particulate species:

PM COARSE (EELPMC) -- Default: 0.6 ! EELPMC = 0.6 !
PM FINE (EELPMF) -- Default: 1.0 ! EELPMF = 1.0 !

BACKGROUND particulate species:

PM COARSE (EELMCBK) -- Default: 0.6 ! EELMCBK = 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 !

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: 2 ! MVISBK = 2 !

- 1 = Supply single light extinction and hygroscopic fraction
 - Hourly F(RH) adjustment applied to hygroscopic background and modeled sulfate and nitrate
- 2 = Compute extinction from speciated PM measurements (A)
 - Hourly F(RH) adjustment applied to observed and modeled sulfate and nitrate
 - F(RH) factor is capped at F(RHMAX)
- 3 = Compute extinction from speciated PM measurements (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 = Compute extinction from speciated PM measurements
 - FLAG monthly RH adjustment factor applied to observed 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

Additional inputs used for MVISBK = 1:

Background light extinction (1/Mm)
(BEXTBK) -- No default ! BEXTBK = 12.0 !

Percentage of particles affected by relative humidity
(RHFRAC) -- No default ! RHFRAC = 10.0 !

Additional inputs used for MVISBK = 6:

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 = 3.4, 3.1, 2.9, 2.6,
3.2, 3.5, 3.7, 3.9,
3.9, 3.4, 3.2, 3.5 !

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 = 690230 ,80020 ,80140 !
(TZONE) -- No default
! TZONE = 0.0 ,0.0 ,0.0 !

Additional inputs used for MVISBK = 2,3,6,7:

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 = 0.23, 0.23, 0.23, 0.23,
0.23, 0.23, 0.23, 0.23,
0.23, 0.23, 0.23, 0.23 !
(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 = 3.0, 3.0, 3.0, 3.0,
3.0, 3.0, 3.0, 3.0,
3.0, 3.0, 3.0, 3.0 !

(BKOC) -- No default ! BKOC = 1.4, 1.4, 1.4, 1.4,
1.4, 1.4, 1.4, 1.4,
1.4, 1.4, 1.4, 1.4 !
(BKSOIL) -- No default ! BKSOIL= 0.5, 0.5, 0.5, 0.5,
0.5, 0.5, 0.5, 0.5,
0.5, 0.5, 0.5, 0.5 !
(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 = 2,3,5,6,7:

Extinction due to Rayleigh scattering is added (1/Mm)
(BEXTRAY) -- Default: 10.0 ! BEXTRAY = 10.0 !

!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 = 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

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

Averaging time(s) reported

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

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

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

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

User-specified averaging time in hours - results for
an averaging time of NAVG hours are reported for

NAVG greater than 0:
(NAVG) -- Default: 0 ! NAVG = 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 = F !

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 = 1 !

-- Specific ranks of 'Top-N' values reported (NTOP values must be entered)
(ITOP(4) array) -- Default: ! ITOP = 1 !
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 = T !

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

-- Default: 0.5

Threshold for 1-hr averages (THRESH1) ! THRESH1 = 1.000E01 !

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 = F !

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 = 0 !

- 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!

CALPUFF NOR 2003 BART Evaluation
MAMMOTH CAVE CENRAP 6km MET FIELD
SCREENING ANALYSIS

----- Run title (3 lines) -----

CALPOST MODEL CONTROL FILE

INPUT GROUP: 0 -- Input and Output File Names

Input Files

File	Default File Name	
Conc/Dep Flux File	MODEL.DAT	! MODDAT = ../calpuff/outputs/nor/nrcmc2003q4.con !
Relative Humidity File	VISB.DAT	! VISDAT = ../calpuff/outputs/nor/nrcmc2003q4.vis !
Background Data File	BACK.DAT	* BACKDAT = *
Transmissometer or Nephelometer Data File or DATSAV Weather Data File or Prognostic Weather File	VSRN.DAT	* VSRDAT = *

Output Files

File	Default File Name	
List File	CALPOST.LST	! PSTLST = nrcmc2003q4m6.lst !

Pathname for Timeseries Files (blank) * TSPATH = *
(activate with exclamation points only if
providing NON-BLANK character string)

Pathname for Plot Files (blank) * PLPATH = *
(activate with exclamation points only if
providing NON-BLANK character string)

User Character String (U) to augment default filenames
(activate with exclamation points only if
providing NON-BLANK character string)

Timeseries	TSERIES_ASPEC_ttHR_CONC_TSUNAM.DAT
Peak Value	PEAKVAL_ASPEC_ttHR_CONC_TSUNAM.DAT

* TSUNAM = *

Top Nth Rank Plot RANK(ALL)_ASPEC_ttHR_CONC_TUNAM.DAT
or RANK(ii)_ASPEC_ttHR_CONC_TUNAM.GRD

* TUNAM = *

Exceedance Plot EXCEED_ASPEC_ttHR_CONC_XUNAM.DAT
or EXCEED_ASPEC_ttHR_CONC_XUNAM.GRD

* XUNAM = *

Echo Plot
(Specific Days)

yyyy_Mmm_Ddd_hh00(UTCszzzz)_L00_ASPEC_ttHR_CONC.DAT
or yyyy_Mmm_Ddd_hh00(UTCszzzz)_L00_ASPEC_ttHR_CONC.GRD

Visibility Plot DAILY_VISIB_VUNAM.DAT * VUNAM =VTEST *
(Daily Peak Summary)

Auxiliary Output Files

File Default File Name
---- -----
Visibility Change DELVIS.DAT * DVISDAT = deciview.dat *

All file names will be converted to lower case if LCFILES = T
Otherwise, if LCFILES = F, file names will be converted to UPPER CASE
T = lower case ! LCFILES = T !
F = UPPER CASE

NOTE: (1) file/path names can be up to 132 characters in length
NOTE: (2) Filenames for ALL PLOT and TIMESERIES FILES are constructed
using a template that includes a pathname, user-supplied
character(s), and context-specific strings, where
ASPEC = Species Name
CONC = CONC Or WFLX Or DFLX Or TFLX
tt = Averaging Period (e.g. 03)
ii = Rank (e.g. 02)
hh = Hour(ending) in LST
szzzz = LST time zone shift (EST is -0500)
yyyy = Year(LST)
mm = Month(LST)
dd = day of month (LST)
are determined internally based on selections made below.
If a path or user-supplied character(s) are supplied, each
must contain at least 1 non-blank character.

!END!

INPUT GROUP: 1 -- General run control parameters

Option to run all periods found
in the met. file(s) (METRUN) Default: 0 ! METRUN = 1 !

METRUN = 0 - Run period explicitly defined below

METRUN = 1 - Run all periods in CALPUFF data file(s)

Starting date: Year (ISYR) -- No default ! ISYR = 2003 !
(used only if Month (ISMO) -- No default ! ISMO = 0 !
METRUN = 0) Day (ISDY) -- No default ! ISDY = 0 !
Hour (ISHR) -- No default ! ISHR = 0 !

Number of hours to process (NHRS) -- No default ! NHRS = 0 !

Process every hour of data?(NREP) -- Default: 1 ! NREP = 1 !
(1 = every hour processed,
2 = every 2nd hour processed,
5 = every 5th hour 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 !
 $X(\text{new}) = X(\text{old}) * A + B$ 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 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 !

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 = -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

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

Identify the Base Time Zone for the CALPUFF simulation
(BTZONE) -- No default * BTZONE = 0.*

Particle growth curve f(RH) for hygroscopic species
(MFRH) -- Default: 2 ! MFRH = 2 !

- 1 = IWAQM (1998) f(RH) curve (originally used with MVISBK=1)
- 2 = FLAG (2000) f(RH) tabulation
- 3 = EPA (2003) f(RH) tabulation

Maximum relative humidity (%) used in particle growth curve
(RHMAX) -- Default: 98 ! RHMAX = 95.0 !

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 = F !
Include COARSE PARTICLES? (LVPMC) -- Default: T ! LVPMC = T !
Include FINE PARTICLES? (LVPMF) -- Default: T ! LVPMF = T !
Include ELEMENTAL CARBON? (LVEC) -- Default: T ! LVEC = F !

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 = PMF !

Extinction Efficiency (1/Mm per ug/m**3)

MODELED particulate species:

PM COARSE (EELPMC) -- Default: 0.6 ! EELPMC = 0.6 !
PM FINE (EELPMF) -- Default: 1.0 ! EELPMF = 1.0 !

BACKGROUND particulate species:

PM COARSE (EELMCBK) -- Default: 0.6 ! EELMCBK = 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 !

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: 2 ! MVISBK = 6 !

- 1 = Supply single light extinction and hygroscopic fraction
 - Hourly F(RH) adjustment applied to hygroscopic background and modeled sulfate and nitrate
- 2 = Compute extinction from speciated PM measurements (A)
 - Hourly F(RH) adjustment applied to observed and modeled sulfate and nitrate
 - F(RH) factor is capped at F(RHMAX)
- 3 = Compute extinction from speciated PM measurements (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 = Compute extinction from speciated PM measurements
 - FLAG monthly RH adjustment factor applied to observed 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

Additional inputs used for MVISBK = 1:

Background light extinction (1/Mm)
(BEXTBK) -- No default ! BEXTBK = 12.0 !

Percentage of particles affected by relative humidity
(RHFRAC) -- No default ! RHFRAC = 10.0 !

Additional inputs used for MVISBK = 6:

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 = 3.4, 3.1, 2.9, 2.6,
3.2, 3.5, 3.7, 3.9,
3.9, 3.4, 3.2, 3.5 !

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 = 690230 ,80020 ,80140 !
(TZONE) -- No default
! TZONE = 0.0 ,0.0 ,0.0 !

Additional inputs used for MVISBK = 2,3,6,7:

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 = 0.23, 0.23, 0.23, 0.23,
0.23, 0.23, 0.23, 0.23,
0.23, 0.23, 0.23, 0.23 !
(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 = 3.0, 3.0, 3.0, 3.0,
3.0, 3.0, 3.0, 3.0,
3.0, 3.0, 3.0, 3.0 !

(BKOC) -- No default ! BKOC = 1.4, 1.4, 1.4, 1.4,
1.4, 1.4, 1.4, 1.4,
1.4, 1.4, 1.4, 1.4 !
(BKSOIL) -- No default ! BKSOIL= 0.5, 0.5, 0.5, 0.5,
0.5, 0.5, 0.5, 0.5,
0.5, 0.5, 0.5, 0.5 !
(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 = 2,3,5,6,7:

Extinction due to Rayleigh scattering is added (1/Mm)
(BEXTRAY) -- Default: 10.0 ! BEXTRAY = 10.0 !

!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 = 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

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

Averaging time(s) reported

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

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

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

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

User-specified averaging time in hours - results for
an averaging time of NAVG hours are reported for

NAVG greater than 0:
(NAVG) -- Default: 0 ! NAVG = 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 = F !

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 = 1 !

-- Specific ranks of 'Top-N' values reported (NTOP values must be entered)
(ITOP(4) array) -- Default: ! ITOP = 1 !
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 = T !

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

-- Default: 0.5

Threshold for 1-hr averages (THRESH1) ! THRESH1 = 1.000E01 !

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 = F !

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 = 0 !

- 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!

BARTCa1puffEmissionInputs

MISSISSIPPI LIME SCREENING POINT SOURCE EMISSION RATES
(Emission Rates in g/s --> SO2, SO4, NOx, HNO3, NO3, PM10)

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
1 ! SRCNAM =		69!							
1 ! X =	604.487,	-201.419,	23.16,	140.00,	3.35,	6.45,	468.47,	0.00,	
	4.46095E+00,	0.00E+00,	8.13467E+00,	0.00E+00,	0.00E+00,	0.00E+00,	2.3326E-01!		
1 ! FMFAC = 1.0 ! !END!									
2 ! SRCNAM =		70!							
2 ! X =	604.474,	-201.408,	23.16,	140.00,	3.35,	6.45,	468.47,	0.00,	
	4.46095E+00,	0.00E+00,	8.13467E+00,	0.00E+00,	0.00E+00,	0.00E+00,	2.3326E-01!		
2 ! FMFAC = 1.0 ! !END!									
3 ! SRCNAM =		71!							
3 ! X =	604.457,	-201.400,	23.16,	140.00,	3.35,	6.45,	468.47,	0.00,	
	4.46095E+00,	0.00E+00,	8.13467E+00,	0.00E+00,	0.00E+00,	0.00E+00,	2.3326E-01!		
3 ! FMFAC = 1.0 ! !END!									
4 ! SRCNAM =		73!							
4 ! X =	604.481,	-201.418,	14.02,	140.00,	1.42,	25.02,	435.93,	0.00,	
	0.00E+00,	0.00E+00,	0.00E+00,	0.00E+00,	0.00E+00,	0.00E+00,	1.085E-02!		
4 ! FMFAC = 1.0 ! !END!									
5 ! SRCNAM =		74!							
5 ! X =	604.468,	-201.408,	14.02,	140.00,	1.42,	25.02,	435.93,	0.00,	
	0.00E+00,	0.00E+00,	0.00E+00,	0.00E+00,	0.00E+00,	0.00E+00,	1.085E-02!		
5 ! FMFAC = 1.0 ! !END!									
6 ! SRCNAM =		75!							
6 ! X =	604.452,	-201.398,	14.02,	140.00,	1.42,	25.02,	435.93,	0.00,	
	0.00E+00,	0.00E+00,	0.00E+00,	0.00E+00,	0.00E+00,	0.00E+00,	1.085E-02!		
6 ! FMFAC = 1.0 ! !END!									

MISSISSIPPI LIME SCREENING POINT SOURCE EMISSION RATES
(Emission Rates in g/s --> SO2, SO4, NOx, HNO3, NO3, PM10)

	X Coordinate (km)	Y Coordinate (km)	Effect. Height (m)	Base Elevation (m)	Initial Sigma y (m)	Initial Sigma z (m)	Emission Rates
7 ! SRCNAM =		63B!					
! X =	604.487,	-201.415,	22.25,	140.00,	0.21,	0.28,	0.00E+00,
	0.00E+00,	0.00E+00,	0.00E+00,	0.00E+00,	0.00E+00,	6.93E-03!	
!END!							
8 ! SRCNAM =		63C!					
! X =	604.472,	-201.407,	22.25,	140.00,	0.21,	0.28,	0.00E+00,
	0.00E+00,	0.00E+00,	0.00E+00,	0.00E+00,	0.00E+00,	6.93E-03!	
!END!							
9 ! SRCNAM =		63D!					
! X =	604.457,	-201.397,	22.25,	140.00,	0.21,	0.28,	0.00E+00,
	0.00E+00,	0.00E+00,	0.00E+00,	0.00E+00,	0.00E+00,	6.93E-03!	
!END!							

INDEPENDENCE P&L SCREENING EMISSION INPUT
(Emission Rates in g/s --> SO2, SO4, NOx, HNO3, NO3, PM10)

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
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BARTCalpuffEmissionInputs

1 ! SRCNAM = EP05 !
 1 ! X = 229.4372, -96.8095, 76.20, 238.36, 2.042, 28.524, 436.48, 0.0, 3.877866E02,
 0.0E00, 3.26725E01, 0.0E00, 0.0E00, 5.43787E00 !
 1 ! FMFAC = 1.0 ! !END!

INDEPENDENCE P&L REFINED EMISSION INPUT
 (Emission Rates in g/s --> SO2, SO4, NOx, HNO3, NO3, PM10)

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
1	-199.0226	233.2908	76.20	238.4	2.04	28.524	436.48	0.0	3.877866E02,

1 ! SRCNAM = EP05 !
 1 ! X = -199.0226, 233.2908, 76.20, 238.4, 2.04, 28.524, 436.48, 0.0, 3.877866E02,
 0.0E00, 3.26725E01, 0.0E00, 0.0E00, 5.43787E00 !
 1 ! FMFAC = 1.0 ! !END!

MARSHALL MUNICIPAL SCREENING EMISSION INPUT
 (Emission Rates in g/s --> SO2, SO4, NOx, HNO3, NO3, PM10)

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
1	325.2775	-90.0850	49.683	239.58	1.524	17.821	449.82	0.0	1.844760E02,

1 ! SRCNAM = EP05 !
 1 ! X = 325.2775, -90.0850, 49.683, 239.58, 1.524, 17.821, 449.82, 0.0,
 1.844760E02, 0.0E00, 3.057429E01, 0.0E00, 0.0E00, 3.46011E00 !
 1 ! FMFAC = 1.0 ! !END!

MARSHALL MUNICIPAL REFINED EMISSION INPUT
 (Emission Rates in g/s --> SO2, SO4, NOx, HNO3, NO3, PM10)

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
1	-103.2238	234.7896	49.68	239.6	1.524	17.821	449.82	0.0	1.844760E02,

1 ! SRCNAM = EP05 !
 1 ! X = -103.2238, 234.7896, 49.68, 239.6, 1.524, 17.821, 449.82, 0.0,
 1.844760E02, 0.0E00, 3.057429E01, 0.0E00, 0.0E00, 3.46011E00 !
 1 ! FMFAC = 1.0 ! !END!

COLUMBIA MUNICIPAL SCREENING EMISSION INPUT
 (Emission Rates in g/s --> SO2, SO4, NOx, HNO3, NO3, PM10)

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
1	402.4222	-103.9007	91.44	237.1	2.44	15.34	438.71	0.0	8.330881E01,

1 ! SRCNAM = EP02 !
 1 ! X = 402.4222, -103.9007, 91.44, 237.1, 2.44, 15.34, 438.71, 0.0, 8.330881E01,
 0.0E00, 2.589565E01, 0.0E00, 0.0E00, 0.0E00, 0.057975E00 !
 1 ! FMFAC = 1.0 ! !END!

COLUMBIA MUNICIPAL REFINED EMISSION INPUT
 (Emission Rates in g/s --> SO2, SO4, NOx, HNO3, NO3, PM10)

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
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                BARTCalpuffEmissionInputs
      (km)      (km)      (m)      (m)      (m) (m/s) (deg. K)
-----
1 ! SRCNAM = EP02 !
1 ! X = -27.1638, 216.8230, 91.44, 237.1, 2.44, 15.34, 438.71, 0.0, 8.330881E01,
0.0E00, 2.589565E01, 0.0E00, 0.0E00, 5.7975E-02 !
1 ! FMFAC = 1.0 ! !END!

```

HOLCIM CLARKSVILLE SCREENING EMISSION INPUT
(Emission Rates in g/s --> SO2, SO4, NOx, HNO3, NO3, PM10)

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
1	516.7272	-51.6388	76.20	155.45	6.40	9.55	447.59	0.0	5.064852E02, 0.0E00, 3.062725E02, 0.0E00, 0.0E00, 6.5294E00

1 ! SRCNAM = EP14 !
1 ! X = 516.7272, -51.6388, 76.20, 155.45, 6.40, 9.55, 447.59, 0.0, 5.064852E02, 0.0E00, 3.062725E02, 0.0E00, 0.0E00, 6.5294E00 !
1 ! FMFAC = 1.0 ! !END!

HOLCIM CLARKSVILLE REFINED EMISSION INPUT
(Emission Rates in g/s --> SO2, SO4, NOx, HNO3, NO3, PM10)

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
1	89.5282	262.5797	76.20	155.45	6.40	9.55	447.59	0.0	5.064852E02, 0.0E00, 3.062728E02, 0.0E00, 0.0E00, 6.5294E00

1 ! SRCNAM = EP14 !
1 ! X = 89.5282, 262.5797, 76.20, 155.45, 6.40, 9.55, 447.59, 0.0, 5.064852E02, 0.0E00, 3.062728E02, 0.0E00, 0.0E00, 6.5294E00 !
1 ! FMFAC = 1.0 ! !END!