

Adding gas-phase chemical reactions



$$k = 2.33 \times 10^{-12} \exp[-193/T]$$

globchem.dat

```

A BENZ          1.00 1.000E-20 1.000E-20 1.000E-20 1.000E-20
      0 0 0 0 0 0 0 0 0
      :
A 813 2.33E-12 0.0E+00 -193 0 0.00 0. 0.
      BENZ      +      OH
=1.920CH2O      +0.252GLYX      +
+               +               +
+               +               +
+               +               +
    
```

comode.h

```

PARAMETER (IGAS = 240, NMRATE = 510, IPHOT = 85, MAXGL = 750)
! IGAS      = MAXIMUM NUMBER OF GASES, ACTIVE + INACTIVE
! NMRATE    = MAXIMUM NUMBER OF RATES CONSTANTS (MAX # REACTIONS)
! IPHOT     = MAXIMUM NUMBER OF PHOTO RATES
! MAXGL     = MAXIMUM NUMBER OF GAINS / LOSSES FOR EACH CHEMICAL SPECIES
    
```

Adding gas-phase tracers

input.geos

```

Number of Tracers      : 73
Tracer Entries -----> : TR#   Name  g/mole  Tracer Members; ( ) = emitted
:
Tracer #57             :  57   BENZ   12.0   (6C)
    
```

globchem.dat

```

A    0 0.00E+00  0.0E+00    0 0    0.00    0.    0.
      EMISSION      +
=1.000BENZ          +                +
+                  +                +
+                  +                +
+                  +                +
    
```

CMN_SIZE

```

INTEGER, PARAMETER :: NNPAR = 73    ! NNPAR = max number of tracers
INTEGER, PARAMETER :: NEMPARA = 18  ! NEMPARA = max # of anthro emis species
INTEGER, PARAMETER :: NEMPARB = 3   ! NEMPARB = max # of biogenic emis species
    
```

tracerid_mod.f

```

CASE ( 'BENZ' )
    COUNT      = COUNT + 1
    IDTBENZ    = N
    IDBBENZ    = COUNT ← biomass_mod.f
    IDFBENZ    = COUNT ← biofuel_mod.f
    :
    IDEBENZ    = 13 ← anthroems.f
    IF ( IDEBENZ /= 0 ) IDEMS(IDEBENZ) = IDTBENZ
    
```

Adding dry/wet deposition

globchem.dat

```

A DRYGLYX          1.00 0.000E+00 0.000E+00 0.000E+00 0.000E+00
  :
  :
A 734 0.00E+00    0.0E+00      0 0      0.00      0.      0.
  GLYX            +
=1.000DRYDEP      +1.000DRYGLYX      +
+                 +                 +
+                 +                 +
+                 +                 +

```

drydep_mod.f

```

INTEGER, PARAMETER :: MAXDEP = 50
  :
ELSE IF ( N == IDTGLYX ) THEN
  NUMDEP          = NUMDEP + 1
  NTRAIND(NUMDEP) = IDTGLYX
  NDVZIND(NUMDEP) = NUMDEP
  DEPNAME(NUMDEP) = 'GLYX'
  HSTAR(NUMDEP)   = 3.6d+5
  F0(NUMDEP)      = 0.0d0
  XMW(NUMDEP)     = 58d-3
  AIROSOL(NUMDEP) = .FALSE.

```

wetscav_mod.f

```

INTEGER, PARAMETER :: NSOLMAX = 38
  :
ELSE IF ( N == IDTGLYX ) THEN
  NSOL          = NSOL + 1
  IDWETD(NSOL) = IDTGLYX
  :
ELSE IF ( N == IDTGLYX ) THEN
  CALL COMPUTE_L2G( 3.6d5, -7.2d3,
&                 T(I,J,L), CLDLIQ(I,J,L), L2G )

```