CAABA/MECCA

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CAABA is a box model that uses MECCA chemistry, plus simplified calculations for emission, deposition, and photolysis. For more information, see [1]

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5.1 messy_main_rnd_mtw_ja::add Interface Reference

Private Member Functions

- subroutine gf2x_add (c, a, b)

5.1.1 Member Function/Subroutine Documentation

5.1.1.1 subroutine messy_main_rnd_mtw_ja::add::gf2x_add (type(gf2x_obj), intent(inout) *c,* type(gf2x_obj), intent(in) *a,* type(gf2x_obj), intent(in) *b*) `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-ja.f90

5.2 messy_main_rnd_mtw_ja::add_assign Interface Reference

Private Member Functions

- subroutine gf2x_add_assign (c, a)

5.2.1 Member Function/Subroutine Documentation

5.2.1.1 subroutine messy_main_rnd_mtw_ja::add_assign::gf2x_add_assign (type(gf2x_obj), intent(inout) *c,* type(gf2x_obj), intent(in) *a*) `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-ja.f90

5.3 messy_main_rnd_mtw_ja::assign Interface Reference

Private Member Functions

- subroutine gf2x_assign (c, a)

5.3.1 Member Function/Subroutine Documentation

5.3.1.1 subroutine messy_main_rnd_mtw_ja::assign::gf2x_assign (type(gf2x_obj), intent(inout) *c,* type(gf2x_obj), intent(in) *a*) `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-ja.f90

5.4 caaba_io Module Reference

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/caaba_io.f90

5.5 caaba_mem Module Reference

Public Attributes

- CHARACTER(LEN=STRLEN_MEDIUM) caaba_version = ''
- LOGICAL USE_JVAL = .FALSE.
- LOGICAL USE_MECCA = .FALSE.
- LOGICAL USE_RADJIMT = .FALSE.
- LOGICAL USE_READJ = .FALSE.
- LOGICAL USE_SAPPHO = .FALSE.
- LOGICAL USE_SEMIDEP = .FALSE.
- LOGICAL USE_TRAJECT = .FALSE.
- LOGICAL USE_E4CHEM = .FALSE.
- LOGICAL l_ff = .FALSE.
- LOGICAL l_skipkpp = .FALSE.
- LOGICAL l_steady_state_stop = .FALSE.
- LOGICAL l_injectNOx = .FALSE.

- LOGICAL l_spechum = .FALSE.
- LOGICAL l_RRconc = .FALSE.
- REAL(DP) degree_lat = 45._DP
- REAL(DP) degree_lon = 0._DP
- REAL(DP) model_start_day = 80._DP
- REAL(DP) Ca_precip = 0._DP
- REAL(DP) t_NOxon = -1._DP
- REAL(DP) t_NOxoff = -1._DP
- REAL(DP) runlast = -1._DP
- CHARACTER(LEN=12) init_scenario = ''
- CHARACTER(LEN=12) photo_scenario = ''
- CHARACTER(LEN=12) emission_scenario = ''
- CHARACTER(LEN=12) drydep_scenario = ''
- CHARACTER(LEN=STRLEN_VLONG) runtime_str = ''
- CHARACTER(LEN=STRLEN_VLONG) timesteplen_str = ''
- CHARACTER(LEN=STRLEN_ULONG) init_spec = ''
- CHARACTER(LEN=STRLEN_ULONG) init_j = ''
- INTEGER init_j_index = 1
- CHARACTER(LEN=STRLEN_MEDIUM) photrat_channel = ''
- CHARACTER(LEN=STRLEN_ULONG) input_physc = ''
- CHARACTER(LEN=STRLEN_ULONG) input_jval = ''
- CHARACTER(LEN=STRLEN_VLONG) vlat = 'LAT'
- CHARACTER(LEN=STRLEN_VLONG) vlon = 'LON'
- CHARACTER(LEN=STRLEN_VLONG) vpress = 'PRESS'
- CHARACTER(LEN=STRLEN_VLONG) vtemp = 'TEMP'
- CHARACTER(LEN=STRLEN_VLONG) vrelhum = ''
- CHARACTER(LEN=STRLEN_VLONG) vspechum = ''
- CHARACTER(LEN=STRLEN_VLONG) vtime = 'TIME'
- LOGICAL l_ignore_relhum = .FALSE.
- LOGICAL l_relhum_wmo = .FALSE.
- LOGICAL l_psat_emac = .FALSE.
- LOGICAL l_runtime_str = .FALSE.
- INTEGER t0year
- INTEGER t0month
- INTEGER t0day
- INTEGER t0hour
- INTEGER t0min
- INTEGER t0sec
- REAL(DP) model_time
- REAL(DP) model_start
- REAL(DP) model_end
- REAL(DP) percent_done = 0._DP
- REAL(DP) time0_jul = 0._DP
- REAL(DP) firstjan_jul = 0._DP
- REAL(DP) timesteplen
- REAL(DP) tuf = 1._DP

- REAL(DP) runtime = -1._DP
- CHARACTER(LEN=33) time_string = 'seconds since 2000-01-01 00:00:00'
- LOGICAL l_input_jval = .FALSE.
- INTEGER lyear
- INTEGER lmonth
- INTEGER lday
- INTEGER lhour
- INTEGER lmin
- INTEGER lsec
- REAL(DP) localtime = 0._DP
- REAL(DP) cossza = 1._DP
- REAL(DP) degree_sza
- REAL(DP) x_j_no2
- INTEGER jval_clev
- REAL(DP), dimension(:), allocatable c
- REAL(DP) cair
- REAL(DP) temp = 293._DP
- REAL(DP) press = 101325._DP
- REAL(DP) relhum = 0.81_DP
- REAL(DP) spechum
- REAL(DP) zmbl = 1000._DP
- REAL(DP) zmix = 25._DP

5.5.1 Member Data Documentation

5.5.1.1 REAL(DP), dimension(:), allocatable **caaba_mem::c**

5.5.1.2 REAL(DP) **caaba_mem::Ca_precip** = 0._DP

5.5.1.3 CHARACTER(LEN=STRLEN_MEDIUM) **caaba_mem::caaba_version** = ''

5.5.1.4 REAL(DP) **caaba_mem::cair**

5.5.1.5 REAL(DP) **caaba_mem::cossza** = 1._DP

5.5.1.6 REAL(DP) **caaba_mem::degree_lat** = 45._DP

5.5.1.7 REAL(DP) **caaba_mem::degree_lon** = 0._DP

5.5.1.8 REAL(DP) **caaba_mem::degree_sza**

5.5.1.9 CHARACTER(LEN=12) **caaba_mem::drydep_scenario** = ''

5.5.1.10 CHARACTER(LEN=12) **caaba_mem::emission_scenario** = ''

5.5.1.11 REAL(DP) **caaba_mem::firstjan_jul** = 0._DP

5.5.1.12 CHARACTER(LEN=STRLEN_ULONG) caaba_mem::init_j = ''

5.5.1.13 INTEGER caaba_mem::init_j_index = 1

5.5.1.14 CHARACTER(LEN=12) caaba_mem::init_scenario = ''

5.5.1.15 CHARACTER(LEN=STRLEN_ULONG) caaba_mem::init_spec = ''

5.5.1.16 CHARACTER(LEN=STRLEN_ULONG) caaba_mem::input_jval = ''

5.5.1.17 CHARACTER(LEN=STRLEN_ULONG) caaba_mem::input_physc = ''

5.5.1.18 INTEGER caaba_mem::jval_clev

5.5.1.19 LOGICAL caaba_mem::l_ff = .FALSE.

5.5.1.20 LOGICAL caaba_mem::l_ignore_relhum = .FALSE.

5.5.1.21 LOGICAL caaba_mem::l_injectNOx = .FALSE.

5.5.1.22 LOGICAL caaba_mem::l_input_jval = .FALSE.

5.5.1.23 LOGICAL caaba_mem::l_psat_emac = .FALSE.

5.5.1.24 LOGICAL caaba_mem::l_relhum_wmo = .FALSE.

5.5.1.25 LOGICAL caaba_mem::l_RRconc = .FALSE.

5.5.1.26 LOGICAL caaba_mem::l_runtime_str = .FALSE.

5.5.1.27 LOGICAL caaba_mem::l_skipkpp = .FALSE.

5.5.1.28 LOGICAL caaba_mem::l_spechum = .FALSE.

5.5.1.29 LOGICAL caaba_mem::l_steady_state_stop = .FALSE.

5.5.1.30 INTEGER caaba_mem::lday

5.5.1.31 INTEGER caaba_mem::lhour

5.5.1.32 INTEGER caaba_mem::lmin

5.5.1.33 INTEGER caaba_mem::lmonth

5.5.1.34 REAL(DP) caaba_mem::localtime = 0._DP

5.5.1.35 INTEGER caaba_mem::lsec

5.5.1.36 INTEGER caaba_mem::lyear

5.5.1.37 REAL(DP) caaba_mem::model_end

5.5.1.38 REAL(DP) caaba_mem::model_start

5.5.1.39 REAL(DP) caaba_mem::model_start_day = 80._DP

5.5.1.40 REAL(DP) caaba_mem::model_time

5.5.1.41 REAL(DP) caaba_mem::percent_done = 0._DP

5.5.1.42 CHARACTER(LEN=12) caaba_mem::photo_scenario = ''

5.5.1.43 CHARACTER(LEN=STRLEN_MEDIUM) caaba_mem::photrat_channel = ''

5.5.1.44 REAL(DP) caaba_mem::press = 101325._DP

5.5.1.45 REAL(DP) caaba_mem::relhum = 0.81_DP

5.5.1.46 REAL(DP) caaba_mem::runlast = -1._DP

5.5.1.47 REAL(DP) caaba_mem::runtime = -1._DP

5.5.1.48 CHARACTER(LEN=STRLEN_VLONG) caaba_mem::runtime_str = ''

5.5.1.49 REAL(DP) caaba_mem::spechum

5.5.1.50 INTEGER caaba_mem::t0day

5.5.1.51 INTEGER caaba_mem::t0hour

5.5.1.52 INTEGER caaba_mem::t0min

5.5.1.53 INTEGER caaba_mem::t0month

5.5.1.54 INTEGER caaba_mem::t0sec

5.5.1.55 INTEGER caaba_mem::t0year

5.5.1.56 REAL(DP) caaba_mem::t_NOxoff = -1._DP

5.5.1.57 REAL(DP) caaba_mem::t_NOxon = -1._DP

5.5.1.58 REAL(DP) caaba_mem::temp = 293._DP

5.5.1.59 REAL(DP) caaba_mem::time0_jul = 0._DP

5.5.1.60 CHARACTER(LEN=33) caaba_mem::time_string = 'seconds since 2000-01-01 00:00:00'

5.5.1.61 REAL(DP) caaba_mem::timesteplen

5.5.1.62 CHARACTER(LEN=STRLEN_VLONG) caaba_mem::timesteplen_str = ''

5.5.1.63 REAL(DP) caaba_mem::tuf = 1._DP

5.5.1.64 LOGICAL caaba_mem::USE_E4CHEM = .FALSE.

5.5.1.65 LOGICAL caaba_mem::USE_JVAL = .FALSE.

5.5.1.66 LOGICAL caaba_mem::USE_MECCA = .FALSE.

5.5.1.67 LOGICAL caaba_mem::USE_RADJIMT = .FALSE.

5.5.1.68 LOGICAL caaba_mem::USE_READJ = .FALSE.

5.5.1.69 LOGICAL caaba_mem::USE_SAPPHO = .FALSE.

5.5.1.70 LOGICAL caaba_mem::USE_SEMIDEP = .FALSE.

5.5.1.71 LOGICAL caaba_mem::USE_TRAJECT = .FALSE.

5.5.1.72 CHARACTER(LEN=STRLEN_VLONG) caaba_mem::vlat = 'LAT'

5.5.1.73 CHARACTER(LEN=STRLEN_VLONG) caaba_mem::vlon = 'LON'

5.5.1.74 CHARACTER(LEN=STRLEN_VLONG) caaba_mem::vpress = 'PRESS'

5.5.1.75 CHARACTER(LEN=STRLEN_VLONG) caaba_mem::vrelhum = ''

5.5.1.76 CHARACTER(LEN=STRLEN_VLONG) caaba_mem::vspechum = ''

5.5.1.77 CHARACTER(LEN=STRLEN_VLONG) caaba_mem::vtemp = 'TEMP'

5.5.1.78 CHARACTER(LEN=STRLEN_VLONG) caaba_mem::vtime = 'TIME'

5.5.1.79 REAL(DP) caaba_mem::x_j_no2

5.5.1.80 REAL(DP) caaba_mem::zmbl = 1000._DP

5.5.1.81 REAL(DP) caaba_mem::zmix = 25._DP

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/caaba_mem.f90

5.6 caaba_module Module Reference

CAABA = Chemistry As A Boxmodel Application.

Public Member Functions

- subroutine caaba_read_nml (status, iou)

  Read CTRL namelist.
- subroutine calc_sza
- subroutine caaba_result
- subroutine caaba_init
- subroutine caaba_physc
- subroutine caaba_finish

Public Attributes

- CHARACTER(LEN=∗), parameter modstr = 'caaba'
- INTEGER ncid_messy

5.6.1 Detailed Description

Authors

Rolf Sander, MPICH, Mainz, 2003-2015
Hella Riede, MPICH, Mainz, 2007

Todo see TODO file.

5.6.2 Member Function/Subroutine Documentation

5.6.2.1 subroutine caaba_module::caaba_finish ( )

5.6.2.2 subroutine caaba_module::caaba_init ( )

5.6.2.3 subroutine caaba_module::caaba_physc ( )

5.6.2.4 subroutine caaba_module::caaba_read_nml (INTEGER, intent(out) *status,* INTEGER, intent(in) *iou*)

Read coupling namelist (based on `dradon_read_nml_cpl` by P. Joeckel)

Parameters

`out`	*status*	error status
`in`	*iou*	I/O unit

5.6.2.5   subroutine caaba_module::caaba_result (   )

5.6.2.6   subroutine caaba_module::calc_sza (   )

5.6.3   Member Data Documentation

5.6.3.1   CHARACTER(LEN=∗), parameter caaba_module::modstr = 'caaba'

5.6.3.2   INTEGER caaba_module::ncid_messy

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/caaba.f90

5.7   messy_main_rnd_mtw_ja::delete Interface Reference

Private Member Functions

- subroutine gf2x_delete (this)
- subroutine gf2x_delete_prime (mp)

5.7.1   Member Function/Subroutine Documentation

5.7.1.1   subroutine messy_main_rnd_mtw_ja::delete::gf2x_delete (type(gf2x_obj), intent(inout) *this*)   [private]

5.7.1.2   subroutine messy_main_rnd_mtw_ja::delete::gf2x_delete_prime (type(gf2x_prime_obj), intent(inout) *mp*)   [private]

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-ja.f90

5.8   messy_main_rnd_mtw_ja::div Interface Reference

Private Member Functions

- subroutine gf2x_div (q, a, b)

5.8.1   Member Function/Subroutine Documentation

5.8.1.1 subroutine messy_main_rnd_mtw_ja::div::gf2x_div (type(gf2x_obj),
    intent(inout) *q,* **type(gf2x_obj), intent(in)** *a,* **type(gf2x_obj), intent(in)** *b* **)**
    `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-
  ja.f90

5.9 messy_main_rnd_mtw_ja::div_by_x Interface Reference

Private Member Functions

- subroutine gf2x_div_by_x (c, a, i)

5.9.1 Member Function/Subroutine Documentation

5.9.1.1 subroutine messy_main_rnd_mtw_ja::div_by_x::gf2x_div_by_x (
    type(gf2x_obj), intent(inout) *c,* **type(gf2x_obj), intent(in)** *a,* **integer(INT32), intent(in)**
    i **)** `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-
  ja.f90

5.10 messy_main_rnd_mtw_ja::divrem Interface Reference

Private Member Functions

- subroutine gf2x_divrem (q, r, a, b)

5.10.1 Member Function/Subroutine Documentation

5.10.1.1 subroutine messy_main_rnd_mtw_ja::divrem::gf2x_divrem (
    type(gf2x_obj), intent(inout) *q,* **type(gf2x_obj), intent(inout)** *r,* **type(gf2x_obj),**
    intent(in) *a,* **type(gf2x_obj), intent(in)** *b* **)** `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-
  ja.f90

5.11 messy_cmn_gasaq::GASAQ_TYPE Type Reference

Private Attributes

- CHARACTER(STRLEN_KPPSPECIES) name
- REAL(DP) Henry_T0
- REAL(DP) Henry_Tdep
- REAL(DP) alpha_T0
- REAL(DP) alpha_Tdep
- REAL(DP) dryreac
- REAL(DP) pss
- REAL(DP) M

5.11.1 Member Data Documentation

5.11.1.1 REAL(DP) messy_cmn_gasaq::GASAQ_TYPE::alpha_T0 [private]

5.11.1.2 REAL(DP) messy_cmn_gasaq::GASAQ_TYPE::alpha_Tdep [private]

5.11.1.3 REAL(DP) messy_cmn_gasaq::GASAQ_TYPE::dryreac [private]

5.11.1.4 REAL(DP) messy_cmn_gasaq::GASAQ_TYPE::Henry_T0 [private]

5.11.1.5 REAL(DP) messy_cmn_gasaq::GASAQ_TYPE::Henry_Tdep [private]

5.11.1.6 REAL(DP) messy_cmn_gasaq::GASAQ_TYPE::M [private]

5.11.1.7 CHARACTER(STRLEN_KPPSPECIES) messy_cmn_gasaq::GASAQ_TYPE-::name [private]

5.11.1.8 REAL(DP) messy_cmn_gasaq::GASAQ_TYPE::pss [private]

The documentation for this type was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_cmn_gasaq.f90

5.12 messy_main_rnd_mtw_ja::gf2x_obj Type Reference

Private Attributes

- integer(INT32), dimension(:), pointer c = > NULL()
- integer(INT32) deg = -1
- integer(INT32) size = -1

5.12.1 Member Data Documentation

5.12.1.1 integer(INT32), dimension(:), pointer messy_main_rnd_mtw_ja::gf2x_obj::c =
        >NULL() `[private]`

5.12.1.2 integer(INT32) messy_main_rnd_mtw_ja::gf2x_obj::deg = -1 `[private]`

5.12.1.3 integer(INT32) messy_main_rnd_mtw_ja::gf2x_obj::size = -1 `[private]`

The documentation for this type was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-
  ja.f90

5.13 messy_main_rnd_mtw_ja::gf2x_prime_obj Type Reference

Collaboration diagram for messy_main_rnd_mtw_ja::gf2x_prime_obj:
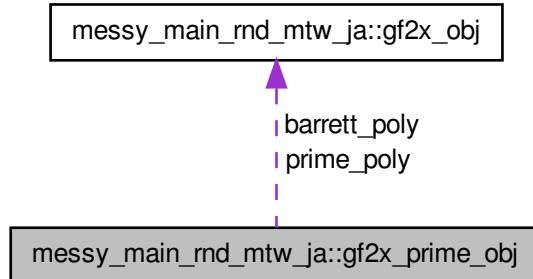
Private Attributes

- type(gf2x_obj) prime_poly
- type(gf2x_obj) barrett_poly
- integer(INT32) deg

5.13.1 Member Data Documentation

5.13.1.1 type(gf2x_obj) messy_main_rnd_mtw_ja::gf2x_prime_obj::barrett_poly
        `[private]`

5.13.1.2 integer(INT32) messy_main_rnd_mtw_ja::gf2x_prime_obj::deg
`[private]`

5.13.1.3 type(gf2x_obj) messy_main_rnd_mtw_ja::gf2x_prime_obj::prime_poly
`[private]`

The documentation for this type was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-
  ja.f90

5.14 messy‗main‗tools::ind2val Interface Reference

Private Member Functions

- subroutine ind2val_1d (val, field, k, f)
- subroutine ind2val_2d (kproma, val, field, k, f)

5.14.1 Member Function/Subroutine Documentation

**5.14.1.1 subroutine messy_main_tools::ind2val::ind2val_1d (REAL(DP), intent(out) *val,*
REAL(DP), dimension(:), intent(in) *field,* INTEGER, intent(in) *k,* REAL(DP), intent(in),
optional *f*)** `[private]`

**5.14.1.2 subroutine messy_main_tools::ind2val::ind2val_2d (INTEGER, intent(in)
kproma, REAL(DP), dimension(:), intent(out) *val,* REAL(DP), dimension(:,:), intent(in)
field, INTEGER, dimension(:), intent(in) *k,* REAL(DP), dimension(:), intent(in), optional *f*
)** `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_tools.f90

5.15 messy‗main‗tools::iso2ind Interface Reference

Private Member Functions

- subroutine iso2ind_1d (field, iso, k, f, lrev)
- subroutine iso2ind_2d (kproma, field, iso, k, f, lrev)

5.15.1 Member Function/Subroutine Documentation

5.15.1.1   subroutine messy_main_tools::iso2ind::iso2ind_1d (REAL(DP), dimension(:), intent(in) *field*, REAL(DP), intent(in) *iso*, INTEGER, intent(out) *k*, REAL(DP), intent(out), optional *f*, LOGICAL, intent(in), optional *lrev*) `[private]`

5.15.1.2   subroutine messy_main_tools::iso2ind::iso2ind_2d (INTEGER, intent(in) *kproma*, REAL(DP), dimension(:,:), intent(in) *field*, REAL(DP), dimension(:), intent(in) *iso*, INTEGER, dimension(:), intent(out) *k*, REAL(DP), dimension(:), intent(out), optional *f*, LOGICAL, intent(in), optional *lrev*) `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_tools.f90

5.16   messy_main_tools_kp4_compress::kco_compress Interface - Reference

Private Member Functions

- subroutine kco_compress (n_points, T, H, Hnew, IERR, f, RCONST, FIX, Reject-LastH, RejectMoreH, Kacc, Krej)

5.16.1   Constructor & Destructor Documentation

5.16.1.1   subroutine messy_main_tools_kp4_compress::kco_compress::kco_-compress (integer, intent(inout) *n_points*, real(kind=dp), dimension(:), intent(inout) *T*, real(kind=dp), dimension(:), intent(inout) *H*, real(kind=dp), dimension(:), intent(inout) *Hnew*, INTEGER, dimension(:), intent(inout) *IERR*, real(kind=dp), dimension(:,:), intent(inout) *f*, real(kind=dp), dimension(:,:), intent(inout) *RCONST*, real(kind=dp), dimension(:,:), intent(inout) *FIX*, LOGICAL, dimension(:), intent(inout) *RejectLastH*, LOGICAL, dimension(:), intent(inout) *RejectMoreH*, integer, dimension(:), intent(inout) *Kacc*, integer, dimension(:), intent(inout) *Krej*) `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_tools_kp4-_compress.f90

5.17   messy_main_tools_kp4_compress::kco_finalize Interface - Reference

Private Member Functions

- subroutine kco_finalize (f, IERR, Kacc, Krej)

5.17.1 Constructor & Destructor Documentation

5.17.1.1 subroutine messy_main_tools_kp4_compress::kco_finalize::kco_finalize (**real(kind=dp), dimension(:,:), intent(inout)** *f,* **integer, dimension(:), intent(inout)** *IERR,* **integer, dimension(:), intent(inout)** *Kacc,* **integer, dimension(:), intent(inout)** *Krej* **)**
`[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_tools_kp4-_compress.f90

5.18 messy_main_tools_kp4_compress::kco_initialize Interface - Reference

Private Member Functions

- subroutine kco_initialize (npoints_initial, f, IERR, Kacc, Krej)

5.18.1 Constructor & Destructor Documentation

5.18.1.1 subroutine messy_main_tools_kp4_compress::kco_initialize::kco_-initialize (**integer, intent(in)** *npoints_initial,* **real(kind=dp), dimension(:,:), intent(in)** *f,* **integer, dimension(:), intent(in)** *IERR,* **integer, dimension(:), intent(in)** *Kacc,* **integer, dimension(:), intent(in)** *Krej* **)** `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_tools_kp4-_compress.f90

5.19 messy_cmn_gasaq Module Reference

Collaboration diagram for messy_cmn_gasaq:
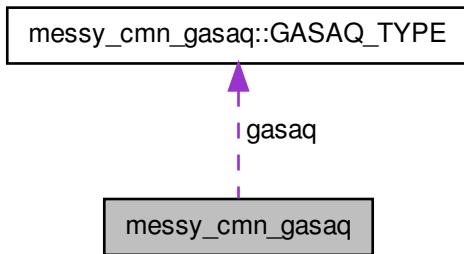
Data Types

- type GASAQ_TYPE

Public Member Functions

- subroutine, public cmn_gasaq_initialize (status)
- INTEGER function, public get_gasaq (name, Henry_T0, Henry_Tdep, alpha_T0, alpha_Tdep, M, pss, dryreac)

Private Member Functions

- subroutine def_all_species (status)
- subroutine add_all_henry (status)
- subroutine add_all_alpha (status)
- subroutine final_check (status)
- subroutine add_all_dryreac (status)

Private Attributes

- REAL(DP), parameter DUMMY = -999.999_dp
- INTEGER, parameter MAXSIZE = 150
- INTEGER n_gasaq
- TYPE(GASAQ_TYPE), dimension(maxsize) gasaq

5.19.1   Member Function/Subroutine Documentation

5.19.1.1   subroutine **messy_cmn_gasaq::add_all_alpha** (INTEGER, intent(inout) *status*) `[private]`

Here is the call graph for this function:

| messy_cmn_gasaq::add_all_alpha | → | add_alpha |
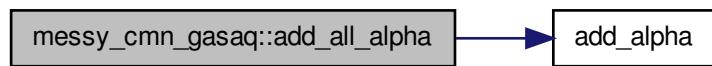
5.19.1.2   subroutine **messy_cmn_gasaq::add_all_dryreac** (INTEGER, intent(inout) *status*) `[private]`

Here is the call graph for this function:

| messy_cmn_gasaq::add_all_dryreac | → | add_dryreac |
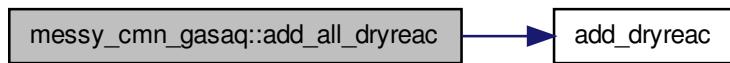
5.19.1.3 subroutine messy_cmn_gasaq::add_all_henry (INTEGER, intent(inout) *status* **)**
[private]

Here is the call graph for this function:

```
messy_cmn_gasaq::add_all_henry  ───▶  add_henry
```
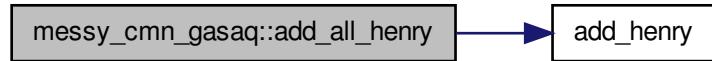
5.19.1.4 subroutine, public messy_cmn_gasaq::cmn_gasaq_initialize (INTEGER,
intent(out) *status* **)**

5.19.1.5 subroutine messy_cmn_gasaq::def_all_species (INTEGER, intent(inout) *status*
) [private]

Here is the call graph for this function:

```
messy_cmn_gasaq::def_all_species  ───▶  add_species
```

5.19.1.6 subroutine messy_cmn_gasaq::final_check (INTEGER, intent(inout) *status* **)**
[private]

5.19.1.7 INTEGER function, public messy_cmn_gasaq::get_gasaq (
CHARACTER(LEN=∗), intent(in) *name,* REAL(DP), intent(out), optional *Henry_T0,*
REAL(DP), intent(out), optional *Henry_Tdep,* REAL(DP), intent(out), optional *alpha_T0,*
REAL(DP), intent(out), optional *alpha_Tdep,* REAL(DP), intent(out), optional *M,*
REAL(DP), intent(out), optional *pss,* REAL(DP), intent(out), optional *dryreac* **)**

5.19.2 Member Data Documentation

5.19.2.1 REAL(DP), parameter messy_cmn_gasaq::DUMMY = -999.999_dp
        `[private]`

5.19.2.2 TYPE(GASAQ_TYPE), dimension(maxsize) messy_cmn_gasaq::gasaq
        `[private]`

5.19.2.3 INTEGER, parameter messy_cmn_gasaq::MAXSIZE = 150 `[private]`

5.19.2.4 INTEGER messy_cmn_gasaq::n_gasaq `[private]`

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_cmn_gasaq.f90

5.20 messy_cmn_photol_mem Module Reference

Public Attributes

- INTEGER, parameter, public ip_O2 = 1
- INTEGER, parameter, public ip_O3P = 2
- INTEGER, parameter, public ip_O1D = 3
- INTEGER, parameter, public ip_H2O2 = 4
- INTEGER, parameter, public ip_NO2 = 5
- INTEGER, parameter, public ip_NO2O = 6
- INTEGER, parameter, public ip_NOO2 = 7
- INTEGER, parameter, public ip_N2O5 = 8
- INTEGER, parameter, public ip_HNO3 = 9
- INTEGER, parameter, public ip_HNO4 = 10
- INTEGER, parameter, public ip_PAN = 11
- INTEGER, parameter, public ip_HONO = 12
- INTEGER, parameter, public ip_CH3OOH = 13
- INTEGER, parameter, public ip_COH2 = 14
- INTEGER, parameter, public ip_CHOH = 15
- INTEGER, parameter, public ip_CH3CO3H = 16
- INTEGER, parameter, public ip_CH3CHO = 17
- INTEGER, parameter, public ip_CH3COCH3 = 18
- INTEGER, parameter, public ip_MGLYOX = 19
- INTEGER, parameter, public ip_HOCl = 20
- INTEGER, parameter, public ip_OClO = 21
- INTEGER, parameter, public ip_Cl2O2 = 22
- INTEGER, parameter, public ip_ClNO3 = 23
- INTEGER, parameter, public ip_ClNO2 = 24
- INTEGER, parameter, public ip_Cl2 = 25
- INTEGER, parameter, public ip_BrO = 26
- INTEGER, parameter, public ip_HOBr = 27
- INTEGER, parameter, public ip_BrCl = 28

- INTEGER, parameter, public ip_BrNO3 = 29
- INTEGER, parameter, public ip_BrNO2 = 30
- INTEGER, parameter, public ip_Br2 = 31
- INTEGER, parameter, public ip_CCl4 = 32
- INTEGER, parameter, public ip_CH3Cl = 33
- INTEGER, parameter, public ip_CH3CCl3 = 34
- INTEGER, parameter, public ip_CFCl3 = 35
- INTEGER, parameter, public ip_CF2Cl2 = 36
- INTEGER, parameter, public ip_CH3Br = 37
- INTEGER, parameter, public ip_CF2ClBr = 38
- INTEGER, parameter, public ip_CF3Br = 39
- INTEGER, parameter, public ip_CH3I = 40
- INTEGER, parameter, public ip_C3H7I = 41
- INTEGER, parameter, public ip_CH2ClI = 42
- INTEGER, parameter, public ip_CH2I2 = 43
- INTEGER, parameter, public ip_IO = 44
- INTEGER, parameter, public ip_HOI = 45
- INTEGER, parameter, public ip_I2 = 46
- INTEGER, parameter, public ip_ICl = 47
- INTEGER, parameter, public ip_IBr = 48
- INTEGER, parameter, public ip_INO2 = 49
- INTEGER, parameter, public ip_INO3 = 50
- INTEGER, parameter, public ip_SO2 = 51
- INTEGER, parameter, public ip_SO3 = 52
- INTEGER, parameter, public ip_OCS = 53
- INTEGER, parameter, public ip_CS2 = 54
- INTEGER, parameter, public ip_H2O = 55
- INTEGER, parameter, public ip_N2O = 56
- INTEGER, parameter, public ip_NO = 57
- INTEGER, parameter, public ip_CO2 = 58
- INTEGER, parameter, public ip_HCl = 59
- INTEGER, parameter, public ip_CHCl2Br = 60
- INTEGER, parameter, public ip_CHClBr2 = 61
- INTEGER, parameter, public ip_CH2ClBr = 62
- INTEGER, parameter, public ip_CH2Br2 = 63
- INTEGER, parameter, public ip_CHBr3 = 64
- INTEGER, parameter, public ip_SF6 = 65
- INTEGER, parameter, public ip_NO3NOO = 66
- INTEGER, parameter, public ip_ClONO2 = 67
- INTEGER, parameter, public ip_MACR = 68
- INTEGER, parameter, public ip_MVK = 69
- INTEGER, parameter, public ip_GLYOX = 70
- INTEGER, parameter, public ip_HOCH2CHO = 71
- INTEGER, parameter, public ip_CH4 = 72
- INTEGER, parameter, public ip_O2_b1b2 = 73
- INTEGER, parameter, public ip_O2_b1 = 74

- INTEGER, parameter, public ip_O2_b2 = 75
- INTEGER, parameter, public ip_O3PO1D = 76
- INTEGER, parameter, public ip_O3Pp = 77
- INTEGER, parameter, public ip_H2O1D = 78
- INTEGER, parameter, public ip_N2 = 79
- INTEGER, parameter, public ip_N2_b1 = 80
- INTEGER, parameter, public ip_N2_b2 = 81
- INTEGER, parameter, public ip_N2_b3 = 82
- INTEGER, parameter, public ip_NN2D = 83
- INTEGER, parameter, public ip_NOp = 84
- INTEGER, parameter, public ip_Op_em = 85
- INTEGER, parameter, public ip_O2p_em = 86
- INTEGER, parameter, public ip_Op_O_em = 87
- INTEGER, parameter, public ip_N2p_em = 88
- INTEGER, parameter, public ip_Np_N_em = 89
- INTEGER, parameter, public ip_Np_N2D_em = 90
- INTEGER, parameter, public ip_N_N2D_em = 91
- INTEGER, parameter, public ip_Op_em_b = 92
- INTEGER, parameter, public ip_se_O2_b1 = 93
- INTEGER, parameter, public ip_se_O2_b2 = 94
- INTEGER, parameter, public ip_se_N2_b1 = 95
- INTEGER, parameter, public ip_se_N2_b2 = 96
- INTEGER, parameter, public ip_se_N2_b3 = 97
- INTEGER, parameter, public ip_se_N2_b4 = 98
- INTEGER, parameter, public ip_se_Op_em = 99
- INTEGER, parameter, public ip_O2_aurq = 100
- INTEGER, parameter, public ip_N2_aurq = 101
- INTEGER, parameter, public ip_H2SO4 = 102
- INTEGER, parameter, public ip_C3O2 = 103
- INTEGER, parameter, public ip_CH3NO3 = 104
- INTEGER, parameter, public ip_CH3O2NO2 = 105
- INTEGER, parameter, public ip_CH3ONO = 106
- INTEGER, parameter, public ip_CH3O2 = 107
- INTEGER, parameter, public ip_HCOOH = 108
- INTEGER, parameter, public IP_MAX = 108
- CHARACTER(LEN=9), dimension(ip_max), parameter, public jname = (/ 'O2 ', 'O3P ', 'O1D ', 'H2O2 ', 'NO2 ', 'NO2O ', 'NOO2 ', 'N2O5 ', 'HNO3 ', 'HNO4 ', 'PAN ', 'HONO ', 'CH3OOH ', 'COH2 ', 'CHOH ', 'CH3CO3H ', 'CH3CHO ', 'CH3COCH3 ', 'MGLYOX ', 'HOCl ', 'OClO ', 'Cl2O2 ', 'ClNO3 ', 'ClNO2 ', 'Cl2 ', 'BrO ', 'HOBr ', 'BrCl ', 'BrNO3 ', 'BrNO2 ', 'Br2 ', 'CCl4 ', 'CH3Cl ', 'CH3CCl3 ', 'CFCl3 ', 'CF2Cl2 ', 'CH3Br ', 'CF2ClBr ', 'CF3Br ', 'CH3I ', 'C3H7I ', 'CH2ClI ', 'CH2I2 ', 'IO ', 'HOI ', 'I2 ', 'ICl ', 'IBr ', 'INO2 ', 'INO3 ', 'SO2 ', 'SO3 ', 'OCS ', 'CS2 ', 'H2O ', 'N2O ', 'NO ', 'CO2 ', 'HCl ', 'CHCl2Br ', 'CHClBr2 ', 'CH2ClBr ', 'CH2Br2 ', 'CHBr3 ', 'SF6 ', 'NO3NOO ', 'ClONO2 ', 'MACR ', 'MVK ', 'GLYOX ', 'HOCH2CHO ', 'CH4 ', 'O2_b1b2 ', 'O2_b1 ', 'O2_b2 ', 'O3PO1D ', 'O3Pp ', 'H2O1D ', 'N2 ', 'N2_b1 ', 'N2_b2 ', 'N2_b3 ', 'NN2D ', 'NOp ', 'Op_em ', 'O2p_em ', 'Op_O_em ', 'N2p_em ', 'Np_N_em ', 'Np_N2D_em', 'N_N2D_em ', 'Op_em_b ', 'se_O2_b1 ', 'se_O2_b2

', 'se_N2_b1 ', 'se_N2_b2 ', 'se_N2_b3 ', 'se_N2_b4 ', 'se_Op_em ', 'O2_aurq ', 'N2_aurq ', 'H2SO4 ', 'C3O2 ', 'CH3NO3 ', 'CH3O2NO2 ', 'CH3ONO ', 'CH3O2 ', 'HCOOH '/)

5.20.1 Member Data Documentation

5.20.1.1 INTEGER, parameter, public **messy_cmn_photol_mem::ip_Br2** = 31

5.20.1.2 INTEGER, parameter, public **messy_cmn_photol_mem::ip_BrCl** = 28

5.20.1.3 INTEGER, parameter, public **messy_cmn_photol_mem::ip_BrNO2** = 30

5.20.1.4 INTEGER, parameter, public **messy_cmn_photol_mem::ip_BrNO3** = 29

5.20.1.5 INTEGER, parameter, public **messy_cmn_photol_mem::ip_BrO** = 26

5.20.1.6 INTEGER, parameter, public **messy_cmn_photol_mem::ip_C3H7I** = 41

5.20.1.7 INTEGER, parameter, public **messy_cmn_photol_mem::ip_C3O2** = 103

5.20.1.8 INTEGER, parameter, public **messy_cmn_photol_mem::ip_CCl4** = 32

5.20.1.9 INTEGER, parameter, public **messy_cmn_photol_mem::ip_CF2Cl2** = 36

5.20.1.10 INTEGER, parameter, public **messy_cmn_photol_mem::ip_CF2ClBr** = 38

5.20.1.11 INTEGER, parameter, public **messy_cmn_photol_mem::ip_CF3Br** = 39

5.20.1.12 INTEGER, parameter, public **messy_cmn_photol_mem::ip_CFCl3** = 35

5.20.1.13 INTEGER, parameter, public **messy_cmn_photol_mem::ip_CH2Br2** = 63

5.20.1.14 INTEGER, parameter, public **messy_cmn_photol_mem::ip_CH2ClBr** = 62

5.20.1.15 INTEGER, parameter, public **messy_cmn_photol_mem::ip_CH2ClI** = 42

5.20.1.16 INTEGER, parameter, public **messy_cmn_photol_mem::ip_CH2I2** = 43

5.20.1.17 INTEGER, parameter, public **messy_cmn_photol_mem::ip_CH3Br** = 37

5.20.1.18 INTEGER, parameter, public **messy_cmn_photol_mem::ip_CH3CCl3** = 34

5.20.1.19 INTEGER, parameter, public **messy_cmn_photol_mem::ip_CH3CHO** = 17

5.20.1.20 INTEGER, parameter, public **messy_cmn_photol_mem::ip_CH3Cl** = 33

5.20.1.21 INTEGER, parameter, public **messy_cmn_photol_mem::ip_CH3CO3H** = 16

5.20.1.22   INTEGER, parameter, public messy_cmn_photol_mem::ip_CH3COCH3 = 18

5.20.1.23   INTEGER, parameter, public messy_cmn_photol_mem::ip_CH3I = 40

5.20.1.24   INTEGER, parameter, public messy_cmn_photol_mem::ip_CH3NO3 = 104

5.20.1.25   INTEGER, parameter, public messy_cmn_photol_mem::ip_CH3O2 = 107

5.20.1.26   INTEGER, parameter, public messy_cmn_photol_mem::ip_CH3O2NO2 = 105

5.20.1.27   INTEGER, parameter, public messy_cmn_photol_mem::ip_CH3ONO = 106

5.20.1.28   INTEGER, parameter, public messy_cmn_photol_mem::ip_CH3OOH = 13

5.20.1.29   INTEGER, parameter, public messy_cmn_photol_mem::ip_CH4 = 72

5.20.1.30   INTEGER, parameter, public messy_cmn_photol_mem::ip_CHBr3 = 64

5.20.1.31   INTEGER, parameter, public messy_cmn_photol_mem::ip_CHCl2Br = 60

5.20.1.32   INTEGER, parameter, public messy_cmn_photol_mem::ip_CHClBr2 = 61

5.20.1.33   INTEGER, parameter, public messy_cmn_photol_mem::ip_CHOH = 15

5.20.1.34   INTEGER, parameter, public messy_cmn_photol_mem::ip_Cl2 = 25

5.20.1.35   INTEGER, parameter, public messy_cmn_photol_mem::ip_Cl2O2 = 22

5.20.1.36   INTEGER, parameter, public messy_cmn_photol_mem::ip_ClNO2 = 24

5.20.1.37   INTEGER, parameter, public messy_cmn_photol_mem::ip_ClNO3 = 23

5.20.1.38   INTEGER, parameter, public messy_cmn_photol_mem::ip_ClONO2 = 67

5.20.1.39   INTEGER, parameter, public messy_cmn_photol_mem::ip_CO2 = 58

5.20.1.40   INTEGER, parameter, public messy_cmn_photol_mem::ip_COH2 = 14

5.20.1.41   INTEGER, parameter, public messy_cmn_photol_mem::ip_CS2 = 54

5.20.1.42   INTEGER, parameter, public messy_cmn_photol_mem::ip_GLYOX = 70

5.20.1.43   INTEGER, parameter, public messy_cmn_photol_mem::ip_H2O = 55

5.20.1.44   INTEGER, parameter, public messy_cmn_photol_mem::ip_H2O1D = 78

5.20.1.45   INTEGER, parameter, public messy_cmn_photol_mem::ip_H2O2 = 4

5.20.1.46   INTEGER, parameter, public messy_cmn_photol_mem::ip_H2SO4 = 102

5.20.1.47   INTEGER, parameter, public messy_cmn_photol_mem::ip_HCl = 59

5.20.1.48   INTEGER, parameter, public messy_cmn_photol_mem::ip_HCOOH = 108

5.20.1.49   INTEGER, parameter, public messy_cmn_photol_mem::ip_HNO3 = 9

5.20.1.50   INTEGER, parameter, public messy_cmn_photol_mem::ip_HNO4 = 10

5.20.1.51   INTEGER, parameter, public messy_cmn_photol_mem::ip_HOBr = 27

5.20.1.52   INTEGER, parameter, public messy_cmn_photol_mem::ip_HOCH2CHO = 71

5.20.1.53   INTEGER, parameter, public messy_cmn_photol_mem::ip_HOCl = 20

5.20.1.54   INTEGER, parameter, public messy_cmn_photol_mem::ip_HOI = 45

5.20.1.55   INTEGER, parameter, public messy_cmn_photol_mem::ip_HONO = 12

5.20.1.56   INTEGER, parameter, public messy_cmn_photol_mem::ip_I2 = 46

5.20.1.57   INTEGER, parameter, public messy_cmn_photol_mem::ip_IBr = 48

5.20.1.58   INTEGER, parameter, public messy_cmn_photol_mem::ip_ICl = 47

5.20.1.59   INTEGER, parameter, public messy_cmn_photol_mem::ip_INO2 = 49

5.20.1.60   INTEGER, parameter, public messy_cmn_photol_mem::ip_INO3 = 50

5.20.1.61   INTEGER, parameter, public messy_cmn_photol_mem::ip_IO = 44

5.20.1.62   INTEGER, parameter, public messy_cmn_photol_mem::ip_MACR = 68

5.20.1.63   INTEGER, parameter, public messy_cmn_photol_mem::IP_MAX = 108

5.20.1.64   INTEGER, parameter, public messy_cmn_photol_mem::ip_MGLYOX = 19

5.20.1.65   INTEGER, parameter, public messy_cmn_photol_mem::ip_MVK = 69

5.20.1.66   INTEGER, parameter, public messy_cmn_photol_mem::ip_N2 = 79

5.20.1.67   INTEGER, parameter, public messy_cmn_photol_mem::ip_N2_aurq = 101

5.20.1.68   INTEGER, parameter, public messy_cmn_photol_mem::ip_N2_b1 = 80

5.20.1.69   INTEGER, parameter, public messy_cmn_photol_mem::ip_N2_b2 = 81

5.20.1.70 **INTEGER, parameter, public messy_cmn_photol_mem::ip_N2_b3 = 82**

5.20.1.71 **INTEGER, parameter, public messy_cmn_photol_mem::ip_N2O = 56**

5.20.1.72 **INTEGER, parameter, public messy_cmn_photol_mem::ip_N2O5 = 8**

5.20.1.73 **INTEGER, parameter, public messy_cmn_photol_mem::ip_N2p_em = 88**

5.20.1.74 **INTEGER, parameter, public messy_cmn_photol_mem::ip_N_N2D_em = 91**

5.20.1.75 **INTEGER, parameter, public messy_cmn_photol_mem::ip_NN2D = 83**

5.20.1.76 **INTEGER, parameter, public messy_cmn_photol_mem::ip_NO = 57**

5.20.1.77 **INTEGER, parameter, public messy_cmn_photol_mem::ip_NO2 = 5**

5.20.1.78 **INTEGER, parameter, public messy_cmn_photol_mem::ip_NO2O = 6**

5.20.1.79 **INTEGER, parameter, public messy_cmn_photol_mem::ip_NO3NOO = 66**

5.20.1.80 **INTEGER, parameter, public messy_cmn_photol_mem::ip_NOO2 = 7**

5.20.1.81 **INTEGER, parameter, public messy_cmn_photol_mem::ip_NOp = 84**

5.20.1.82 **INTEGER, parameter, public messy_cmn_photol_mem::ip_Np_N2D_em = 90**

5.20.1.83 **INTEGER, parameter, public messy_cmn_photol_mem::ip_Np_N_em = 89**

5.20.1.84 **INTEGER, parameter, public messy_cmn_photol_mem::ip_O1D = 3**

5.20.1.85 **INTEGER, parameter, public messy_cmn_photol_mem::ip_O2 = 1**

5.20.1.86 **INTEGER, parameter, public messy_cmn_photol_mem::ip_O2_aurq = 100**

5.20.1.87 **INTEGER, parameter, public messy_cmn_photol_mem::ip_O2_b1 = 74**

5.20.1.88 **INTEGER, parameter, public messy_cmn_photol_mem::ip_O2_b1b2 = 73**

5.20.1.89 **INTEGER, parameter, public messy_cmn_photol_mem::ip_O2_b2 = 75**

5.20.1.90 **INTEGER, parameter, public messy_cmn_photol_mem::ip_O2p_em = 86**

5.20.1.91 **INTEGER, parameter, public messy_cmn_photol_mem::ip_O3P = 2**

5.20.1.92 **INTEGER, parameter, public messy_cmn_photol_mem::ip_O3PO1D = 76**

5.20.1.93 **INTEGER, parameter, public messy_cmn_photol_mem::ip_O3Pp = 77**

5.20.1.94 **INTEGER, parameter, public messy_cmn_photol_mem::ip_OClO = 21**

5.20.1.95 **INTEGER, parameter, public messy_cmn_photol_mem::ip_OCS = 53**

5.20.1.96 **INTEGER, parameter, public messy_cmn_photol_mem::ip_Op_em = 85**

5.20.1.97 **INTEGER, parameter, public messy_cmn_photol_mem::ip_Op_em_b = 92**

5.20.1.98 **INTEGER, parameter, public messy_cmn_photol_mem::ip_Op_O_em = 87**

5.20.1.99 **INTEGER, parameter, public messy_cmn_photol_mem::ip_PAN = 11**

5.20.1.100 **INTEGER, parameter, public messy_cmn_photol_mem::ip_se_N2_b1 = 95**

5.20.1.101 **INTEGER, parameter, public messy_cmn_photol_mem::ip_se_N2_b2 = 96**

5.20.1.102 **INTEGER, parameter, public messy_cmn_photol_mem::ip_se_N2_b3 = 97**

5.20.1.103 **INTEGER, parameter, public messy_cmn_photol_mem::ip_se_N2_b4 = 98**

5.20.1.104 **INTEGER, parameter, public messy_cmn_photol_mem::ip_se_O2_b1 = 93**

5.20.1.105 **INTEGER, parameter, public messy_cmn_photol_mem::ip_se_O2_b2 = 94**

5.20.1.106 **INTEGER, parameter, public messy_cmn_photol_mem::ip_se_Op_em = 99**

5.20.1.107 **INTEGER, parameter, public messy_cmn_photol_mem::ip_SF6 = 65**

5.20.1.108 **INTEGER, parameter, public messy_cmn_photol_mem::ip_SO2 = 51**

5.20.1.109 **INTEGER, parameter, public messy_cmn_photol_mem::ip_SO3 = 52**

5.20.1.110 **CHARACTER(LEN=9), dimension(ip_max), parameter, public messy_cmn_photol_mem::jname** = (/ 'O2 ', 'O3P ', 'O1D ', 'H2O2 ', 'NO2 ', 'NO2O ', 'NOO2 ', 'N2O5 ', 'HNO3 ', 'HNO4 ', 'PAN ', 'HONO ', 'CH3OOH ', 'COH2 ', 'CHOH ', 'CH3CO3H ', 'CH3CHO ', 'CH3COCH3 ', 'MGLYOX ', 'HOCl ', 'OClO ', 'Cl2O2 ', 'ClNO3 ', 'ClNO2 ', 'Cl2 ', 'BrO ', 'HOBr ', 'BrCl ', 'BrNO3 ', 'BrNO2 ', 'Br2 ', 'CCl4 ', 'CH3Cl ', 'CH3CCl3 ', 'CFCl3 ', 'CF2Cl2 ', 'CH3Br ', 'CF2ClBr ', 'CF3Br ', 'CH3I ', 'C3H7I ', 'CH2ClI ', 'CH2I2 ', 'IO ', 'HOI ', 'I2 ', 'ICl ', 'IBr ', 'INO2 ', 'INO3 ', 'SO2 ', 'SO3 ', 'OCS ', 'CS2 ', 'H2O ', 'N2O ', 'NO ', 'CO2 ', 'HCl ', 'CHCl2Br ', 'CHClBr2 ', 'CH2ClBr ', 'CH2Br2 ', 'CHBr3 ', 'SF6 ', 'NO3NOO ', 'ClONO2 ', 'MACR ', 'MVK ', 'GLYOX ', 'HOCH2CHO ', 'CH4 ', 'O2_b1b2 ', 'O2_b1 ', 'O2_b2 ', 'O3PO1D ', 'O3Pp ', 'H2O1D ', 'N2 ', 'N2_b1 ', 'N2_b2 ', 'N2_b3 ', 'NN2D ', 'NOp ', 'Op_em ', 'O2p_em ', 'Op_O_em ', 'N2p_em ', 'Np_N_em ', 'Np_N2D_em', 'N_N2D_em ', 'Op_em_b ', 'se_O2_b1 ', 'se_O2_b2 ', 'se_N2_b1 ', 'se_N2_b2 ', 'se_N2_b3 ', 'se_N2_b4 ', 'se_Op_em ', 'O2_aurq ', 'N2_aurq ', 'H2SO4 ', 'C3O2 ', 'CH3NO3 ', 'CH3O2NO2 ', 'CH3ONO ', 'CH3O2 ', 'HCOOH '/)

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_cmn_photol_-mem.f90

5.21 messy_e4chem Module Reference

Public Member Functions

- subroutine, public CHEMICS (KLON, KLEV, JROW, PTEMP, PQ, Conc, PAPP1, PAPHP1, DANI, DANIM, RJ_O3P, RJ_O1D, RJ_NO2, RJ_HNO3, RJ_COH2, RJ-_CHOH, RJ_N2O5, RJ_HNO4, RJ_NO2O, RJ_NOO2, RJ_H2O2, RJ_CH3OOH, RJ_O2, RJ_CFC11, RJ_CFC12, RJ_N2O, RJ_CLONO2, RJ_CL2O2, RJ_HOC-L, RJ_CCL4, RJ_CH3CL, RJ_CH3CCL3, RJ_HCL, RJ_H2O, RJ_NO, RJ_CO2, zlat, IMONTH, DTIME, tp_i, ZDELTAO3_BRV, ZPRODO2, ZPRODCO, ZPROD-CH4, ZDESTH12, ZDESTH14, ZDESTN13, ZDESTC1, ZDESTCL2O2, ZDEST-CLOH, ZDESTH8, ZDESTH4, ZDESTH11, ZDESTO1)
- subroutine, public INRCGAS
- subroutine, public inisulnew (latitude, nproma, ngpblks, npromz, vnpromz)
- subroutine, public CLSCAV (Conc, PTMST, PRHOA, PDP, zmratep, zfprec, zfe-vap, zclcover, zmlwc, cvdprec, kconbot, PT, NLON, NLEV)
- subroutine, public e4chem_read_nml_ctrl (status, iou)

Public Attributes

- CHARACTER(LEN=∗), parameter, public modstr = 'e4chem'
- CHARACTER(LEN=∗), parameter, public modver = '1.0'
- LOGICAL, public l_fastscav = .FALSE.
- LOGICAL, public l_Brparam = .FALSE.
- INTEGER, public NSTCHPH = 1
- INTEGER, parameter, public NSPEC = 39
- INTEGER, parameter, public ind_H = 1
- INTEGER, parameter, public ind_OH = 2
- INTEGER, parameter, public ind_HO2 = 3
- INTEGER, parameter, public ind_N = 4
- INTEGER, parameter, public ind_NO = 5
- INTEGER, parameter, public ind_NO2 = 6
- INTEGER, parameter, public ind_NO3 = 7
- INTEGER, parameter, public ind_N2O5 = 8
- INTEGER, parameter, public ind_HNO4 = 9
- INTEGER, parameter, public ind_CL = 10
- INTEGER, parameter, public ind_CLO = 11
- INTEGER, parameter, public ind_HOCl = 12
- INTEGER, parameter, public ind_CL2O2 = 13
- INTEGER, parameter, public ind_CL2 = 14
- INTEGER, parameter, public ind_HCHO = 15
- INTEGER, parameter, public ind_CH3O2 = 16

- INTEGER, parameter, public ind_CH4 = 17
- INTEGER, parameter, public ind_N2O = 18
- INTEGER, parameter, public ind_H2O2 = 19
- INTEGER, parameter, public ind_HCl = 20
- INTEGER, parameter, public ind_CO = 21
- INTEGER, parameter, public ind_CH3OOH = 22
- INTEGER, parameter, public ind_ClNO3 = 23
- INTEGER, parameter, public ind_CFCl3 = 24
- INTEGER, parameter, public ind_CF2Cl2 = 25
- INTEGER, parameter, public ind_CH3CL = 26
- INTEGER, parameter, public ind_CCL4 = 27
- INTEGER, parameter, public ind_CH3CCL3 = 28
- INTEGER, parameter, public ind_H2 = 29
- INTEGER, parameter, public ind_HNO3 = 30
- INTEGER, parameter, public ind_NAT = 31
- INTEGER, parameter, public ind_OHAB = 32
- INTEGER, parameter, public ind_HO2AB = 33
- INTEGER, parameter, public ind_ICE = 34
- INTEGER, parameter, public ind_H2O = 35
- INTEGER, parameter, public ind_O3P = 36
- INTEGER, parameter, public ind_O3 = 37
- INTEGER, parameter, public ind_O1D = 38
- INTEGER, parameter, public ind_CO2 = 39
- INTEGER, parameter, public JVALS = 4
- INTEGER, parameter, public NUMRAT = 67
- INTEGER, parameter, public IRCTMIN = 150
- INTEGER, parameter, public IRCTMAX = 320
- INTEGER, parameter, public JDIFTE = IRCTMAX - IRCTMIN
- INTEGER, parameter, public NUMTEM = JDIFTE $*$ JVALS + 1
- REAL(dp), dimension(:,:), allocatable, save, public RCGAS
- REAL(dp), dimension(:,:,:), allocatable, save, public sulook
- INTEGER, parameter, public ksul = 177
- CHARACTER(LEN=32), dimension(39), parameter, public SPC_NAMES = (/ 'H ','OH ','HO2 ', 'N ','NO ','NO2 ', 'NO3 ','N2O5 ','HNO4 ', 'CL ','CLO ','HOCl ', 'CL2O2 ','CL2 ','HCHO ', 'CH3O2 ','CH4 ','N2O ', 'H2O2 ','HCl ', 'CO ','CH3OOH ','ClNO3 ', 'CFCl3 ','CF2Cl2 ','CH3CL ', 'CCL4 ','CH3CCL3 ','H2 ', 'HNO3 ','NAT ','OHAB ', 'HO2AB ','ICE ','H2O ', 'O3P ','O3 ','O1D ', 'CO2 '/)

5.21.1 Member Function/Subroutine Documentation

**5.21.1.1 subroutine, public messy_e4chem::CHEMICS (INTEGER, intent(in) *KLON,*
INTEGER, intent(in) *KLEV,* INTEGER, intent(in) *JROW,* REAL(DP), dimension(:,:),
intent(in) *PTEMP,* REAL(DP), dimension(:,:), intent(in) *PQ,* REAL(DP), dimension(:,:,:),
intent(inout) *Conc,* REAL(dp), dimension(:,:), intent(in) *PAPP1,* REAL(dp),
dimension(:,:), intent(in) *PAPHP1,* REAL(dp), dimension(:), intent(in) *DANI,* REAL(dp),
dimension(:), intent(in) *DANIM,* REAL(DP), dimension(:,:), intent(in) *RJ_O3P,* REAL(DP),
dimension(:,:), intent(in) *RJ_O1D,* REAL(DP), dimension(:,:), intent(in) *RJ_NO2,*
REAL(DP), dimension(:,:), intent(in) *RJ_HNO3,* REAL(DP), dimension(:,:), intent(in)
RJ_COH2, REAL(DP), dimension(:,:), intent(in) *RJ_CHOH,* REAL(DP), dimension(:,:),
intent(in) *RJ_N2O5,* REAL(DP), dimension(:,:), intent(in) *RJ_HNO4,* REAL(DP),
dimension(:,:), intent(in) *RJ_NO2O,* REAL(DP), dimension(:,:), intent(in) *RJ_NOO2,*
REAL(DP), dimension(:,:), intent(in) *RJ_H2O2,* REAL(DP), dimension(:,:), intent(in)
RJ_CH3OOH, REAL(DP), dimension(:,:), intent(in) *RJ_O2,* REAL(DP), dimension(:,:),
intent(in) *RJ_CFC11,* REAL(DP), dimension(:,:), intent(in) *RJ_CFC12,* REAL(DP),
dimension(:,:), intent(in) *RJ_N2O,* REAL(DP), dimension(:,:), intent(in) *RJ_CLONO2,*
REAL(DP), dimension(:,:), intent(in) *RJ_CL2O2,* REAL(DP), dimension(:,:), intent(in)
RJ_HOCL, REAL(DP), dimension(:,:), intent(in) *RJ_CCL4,* REAL(DP), dimension(:,:),
intent(in) *RJ_CH3CL,* REAL(DP), dimension(:,:), intent(in) *RJ_CH3CCL3,* REAL(DP),
dimension(:,:), intent(in) *RJ_HCL,* REAL(DP), dimension(:,:), intent(in) *RJ_H2O,*
REAL(DP), dimension(:,:), intent(in) *RJ_NO,* REAL(DP), dimension(:,:), intent(in)
RJ_CO2, REAL(dp), dimension(:), intent(in) *zlat,* INTEGER, intent(in) *IMONTH,*
REAL(dp), intent(in) *DTIME,* REAL(dp), dimension(:), intent(in) *tp_i,* REAL(dp),
dimension(:,:), intent(inout) *ZDELTAO3_BRV,* REAL(dp), dimension(:,:), intent(inout)
ZPRODO2, REAL(dp), dimension(:,:), intent(inout) *ZPRODCO,* REAL(dp), dimension(:,:),
intent(inout) *ZPRODCH4,* REAL(dp), dimension(:,:), intent(inout) *ZDESTH12,* REAL(dp),
dimension(:,:), intent(inout) *ZDESTH14,* REAL(dp), dimension(:,:), intent(inout)
ZDESTN13, REAL(dp), dimension(:,:), intent(inout) *ZDESTC1,* REAL(dp), dimension(:,:),
intent(inout) *ZDESTCL2O2,* REAL(dp), dimension(:,:), intent(inout) *ZDESTCLOH,*
REAL(dp), dimension(:,:), intent(inout) *ZDESTH8,* REAL(dp), dimension(:,:), intent(inout)
ZDESTH4, REAL(dp), dimension(:,:), intent(inout) *ZDESTH11,* REAL(dp), dimension(:,:),
intent(inout) *ZDESTO1*)**

Here is the call graph for this function:
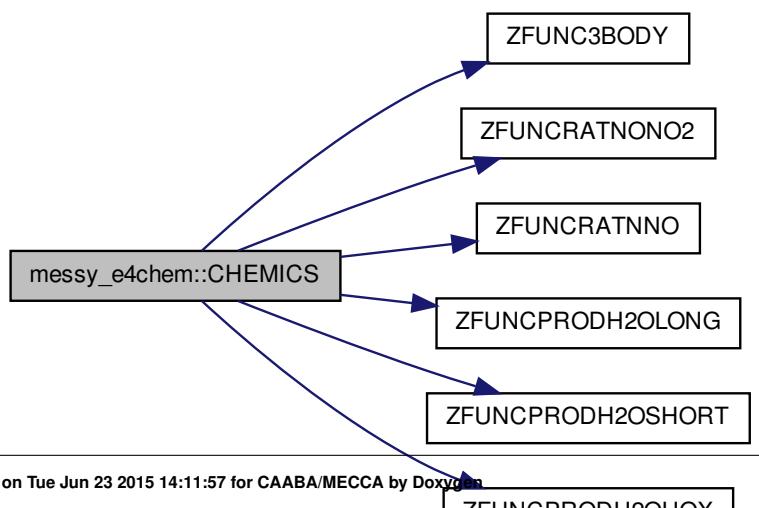
**5.21.1.2 subroutine, public messy_e4chem::CLSCAV (REAL(dp),
dimension(nlon,nlev,nspec), intent(inout)** *Conc,* **REAL(dp), intent(in)** *PTMST,* **REAL(dp),
dimension(nlon,nlev), intent(in)** *PRHOA,* **REAL(dp), dimension(nlon,nlev), intent(in)** *PDP,*
REAL(dp), dimension(nlon,nlev), intent(in) *zmratep,* **REAL(dp), dimension(nlon,nlev),
intent(in)** *zfprec,* **REAL(dp), dimension(nlon,nlev), intent(in)** *zfevap,* **REAL(dp),
dimension(nlon,nlev), intent(in)** *zclcover,* **REAL(dp), dimension(nlon,nlev), intent(in)**
zmlwc, **REAL(dp), dimension(nlon,nlev), intent(in)** *cvdprec,* **REAL(dp), dimension(nlon),
intent(in)** *kconbot,* **REAL(dp), dimension(nlon,nlev), intent(in)** *PT,* **INTEGER, intent(in)**
NLON, **INTEGER, intent(in)** *NLEV* **)**

**5.21.1.3 subroutine, public messy_e4chem::e4chem_read_nml_ctrl (INTEGER,
intent(out)** *status,* **INTEGER, intent(in)** *iou* **)**

**5.21.1.4 subroutine, public messy_e4chem::inisulnew (REAL(dp), dimension(:,:),
intent(in)** *latitude,* **INTEGER, intent(in)** *nproma,* **INTEGER, intent(in)** *ngpblks,* **INTEGER,
intent(in), optional** *npromz,* **INTEGER, dimension(:), intent(in), optional** *vnpromz* **)**

5.21.1.5 subroutine, public messy_e4chem::INRCGAS ( )

5.21.2 Member Data Documentation

5.21.2.1 INTEGER, parameter, public messy_e4chem::ind_CCL4 = 27

5.21.2.2 INTEGER, parameter, public messy_e4chem::ind_CF2Cl2 = 25

5.21.2.3 INTEGER, parameter, public messy_e4chem::ind_CFCl3 = 24

5.21.2.4 INTEGER, parameter, public messy_e4chem::ind_CH3CCL3 = 28

5.21.2.5 INTEGER, parameter, public messy_e4chem::ind_CH3CL = 26

5.21.2.6 INTEGER, parameter, public messy_e4chem::ind_CH3O2 = 16

5.21.2.7 INTEGER, parameter, public messy_e4chem::ind_CH3OOH = 22

5.21.2.8 INTEGER, parameter, public messy_e4chem::ind_CH4 = 17

5.21.2.9 INTEGER, parameter, public messy_e4chem::ind_CL = 10

5.21.2.10 INTEGER, parameter, public messy_e4chem::ind_CL2 = 14

5.21.2.11 INTEGER, parameter, public messy_e4chem::ind_CL2O2 = 13

5.21.2.12 INTEGER, parameter, public messy_e4chem::ind_CINO3 = 23

5.21.2.13 INTEGER, parameter, public messy_e4chem::ind_CLO = 11

5.21.2.14   INTEGER, parameter, public messy_e4chem::ind_CO = 21

5.21.2.15   INTEGER, parameter, public messy_e4chem::ind_CO2 = 39

5.21.2.16   INTEGER, parameter, public messy_e4chem::ind_H = 1

5.21.2.17   INTEGER, parameter, public messy_e4chem::ind_H2 = 29

5.21.2.18   INTEGER, parameter, public messy_e4chem::ind_H2O = 35

5.21.2.19   INTEGER, parameter, public messy_e4chem::ind_H2O2 = 19

5.21.2.20   INTEGER, parameter, public messy_e4chem::ind_HCHO = 15

5.21.2.21   INTEGER, parameter, public messy_e4chem::ind_HCl = 20

5.21.2.22   INTEGER, parameter, public messy_e4chem::ind_HNO3 = 30

5.21.2.23   INTEGER, parameter, public messy_e4chem::ind_HNO4 = 9

5.21.2.24   INTEGER, parameter, public messy_e4chem::ind_HO2 = 3

5.21.2.25   INTEGER, parameter, public messy_e4chem::ind_HO2AB = 33

5.21.2.26   INTEGER, parameter, public messy_e4chem::ind_HOCl = 12

5.21.2.27   INTEGER, parameter, public messy_e4chem::ind_ICE = 34

5.21.2.28   INTEGER, parameter, public messy_e4chem::ind_N = 4

5.21.2.29   INTEGER, parameter, public messy_e4chem::ind_N2O = 18

5.21.2.30   INTEGER, parameter, public messy_e4chem::ind_N2O5 = 8

5.21.2.31   INTEGER, parameter, public messy_e4chem::ind_NAT = 31

5.21.2.32   INTEGER, parameter, public messy_e4chem::ind_NO = 5

5.21.2.33   INTEGER, parameter, public messy_e4chem::ind_NO2 = 6

5.21.2.34   INTEGER, parameter, public messy_e4chem::ind_NO3 = 7

5.21.2.35   INTEGER, parameter, public messy_e4chem::ind_O1D = 38

5.21.2.36   INTEGER, parameter, public messy_e4chem::ind_O3 = 37

5.21.2.37   INTEGER, parameter, public messy_e4chem::ind_O3P = 36

5.21.2.38 **INTEGER, parameter, public messy_e4chem::ind_OH = 2**

5.21.2.39 **INTEGER, parameter, public messy_e4chem::ind_OHAB = 32**

5.21.2.40 **INTEGER, parameter, public messy_e4chem::IRCTMAX = 320**

5.21.2.41 **INTEGER, parameter, public messy_e4chem::IRCTMIN = 150**

5.21.2.42 **INTEGER, parameter, public messy_e4chem::JDIFTE = IRCTMAX - IRCTMIN**

5.21.2.43 **INTEGER, parameter, public messy_e4chem::JVALS = 4**

5.21.2.44 **INTEGER, parameter, public messy_e4chem::ksul = 177**

5.21.2.45 **LOGICAL, public messy_e4chem::l_Brparam = .FALSE.**

5.21.2.46 **LOGICAL, public messy_e4chem::l_fastscav = .FALSE.**

5.21.2.47 **CHARACTER(LEN=∗), parameter, public messy_e4chem::modstr = 'e4chem'**

5.21.2.48 **CHARACTER(LEN=∗), parameter, public messy_e4chem::modver = '1.0'**

5.21.2.49 **INTEGER, parameter, public messy_e4chem::NSPEC = 39**

5.21.2.50 **INTEGER, public messy_e4chem::NSTCHPH = 1**

5.21.2.51 **INTEGER, parameter, public messy_e4chem::NUMRAT = 67**

5.21.2.52 **INTEGER, parameter, public messy_e4chem::NUMTEM = JDIFTE ∗ JVALS + 1**

5.21.2.53 **REAL(dp), dimension(:,:), allocatable, save, public messy_e4chem::RCGAS**

5.21.2.54 **CHARACTER(LEN=32), dimension(39), parameter, public
messy_e4chem::SPC_NAMES = (/ 'H ','OH ','HO2 ', 'N ','NO ','NO2 ', 'NO3 ','N2O5
','HNO4 ', 'CL ','CLO ','HOCl ', 'CL2O2 ','CL2 ','HCHO ', 'CH3O2 ','CH4 ','N2O ', 'H2O2
','HCl ', 'CO ','CH3OOH ','ClNO3 ', 'CFCl3 ','CF2Cl2 ','CH3CL ', 'CCL4 ','CH3CCL3 ','H2 ',
'HNO3 ','NAT ','OHAB ', 'HO2AB ','ICE ','H2O ', 'O3P ','O3 ','O1D ', 'CO2 '/)**

5.21.2.55 **REAL(dp), dimension(:,:,:), allocatable, save, public messy_e4chem::sulook**

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_e4chem.f90

5.22 messy_e4chem_box Module Reference

Public Member Functions

- subroutine, public e4chem_init
- subroutine x0
- subroutine, public e4chem_physc
- subroutine, public e4chem_result
- subroutine, public e4chem_finish

Public Attributes

- REAL(DP), dimension(ip_max) jx = 0.
- REAL(DP), dimension(:), allocatable lwc
- INTEGER ncid_tracer
- INTEGER ncid_spec
- INTEGER ncid_diag
- INTEGER, parameter NDIAG = 14
- CHARACTER(LEN=32), parameter DIAG_NAMES = (/ 'ZDELTAO3_BRV ' , 'ZP-RODO2 ' , 'ZPRODCO ' , 'ZPRODCH4 ' , 'ZDESTH12 ' , 'ZDESTH14 ' , 'ZDEST-N13 ' , 'ZDESTC1 ' , 'ZDESTCL2O2 ' , 'ZDESTCLOH ' , 'ZDESTH8 ' , 'ZDESTH4 ' , 'ZDESTH11 ' , 'ZDESTO1 ' /)
- CHARACTER(LEN=20), dimension(ndiag) unit_diag
- REAL(dp), dimension(ndiag) zdiag
- REAL(dp), dimension(:), allocatable DANI
- REAL(dp), dimension(:), allocatable DANIM

5.22.1 Member Function/Subroutine Documentation

5.22.1.1 subroutine, public messy_e4chem_box::e4chem_finish ( )

5.22.1.2 subroutine, public messy_e4chem_box::e4chem_init ( )

5.22.1.3 subroutine, public messy_e4chem_box::e4chem_physc ( )

Here is the call graph for this function:
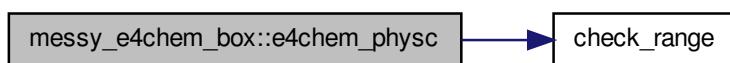
5.22.1.4 **subroutine, public messy_e4chem_box::e4chem_result ( )**

5.22.1.5 **subroutine messy_e4chem_box::x0 ( )**

Here is the call graph for this function:
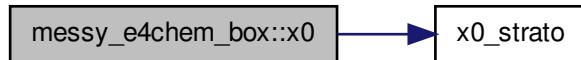
5.22.2 Member Data Documentation

5.22.2.1 **REAL(dp), dimension(:), allocatable messy_e4chem_box::DANI**

5.22.2.2 **REAL(dp), dimension(:), allocatable messy_e4chem_box::DANIM**

5.22.2.3 **CHARACTER(LEN=32), parameter messy_e4chem_box::DIAG_NAMES = (/ 'ZDELTAO3_BRV ' , 'ZPRODO2 ' , 'ZPRODCO ' , 'ZPRODCH4 ' , 'ZDESTH12 ' , 'ZDESTH14 ' , 'ZDESTN13 ' , 'ZDESTC1 ' , 'ZDESTCL2O2 ' , 'ZDESTCLOH ' , 'ZDESTH8 ' , 'ZDESTH4 ' , 'ZDESTH11 ' , 'ZDESTO1 ' /)**

5.22.2.4 **REAL(DP), dimension(ip_max) messy_e4chem_box::jx = 0.**

5.22.2.5 **REAL(DP), dimension(:), allocatable messy_e4chem_box::lwc**

5.22.2.6 **INTEGER messy_e4chem_box::ncid_diag**

5.22.2.7 **INTEGER messy_e4chem_box::ncid_spec**

5.22.2.8 **INTEGER messy_e4chem_box::ncid_tracer**

5.22.2.9 **INTEGER, parameter messy_e4chem_box::NDIAG = 14**

5.22.2.10 **CHARACTER(LEN=20), dimension(ndiag) messy_e4chem_box::unit_diag**

5.22.2.11 **REAL(dp), dimension(ndiag) messy_e4chem_box::zdiag**

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_e4chem_box.f90

5.23 messy_jval Module Reference

Public Member Functions

- subroutine, public aerosol_data
- subroutine, public combine_o3_fields (input_O3, press_2d, press_h, o3_h, v3_h, o3_2d, v3_2d)
- subroutine, public jvalues (v3_2d, cossza_1d, press_2d, relo3_2d, rhum_2d, temp_2d, albedo_1d, aclc_2d, slf_1d, clp_2d, lmidatm, l_heating, pbllev)
- subroutine, public jval_read_nml_ctrl (status, iou)
- subroutine, public jval_solar_time_control (status, cdisse, val)

Public Attributes

- CHARACTER(LEN=∗), parameter, public modstr = 'jval'
- CHARACTER(LEN=∗), parameter, public modver = '14'
- INTEGER, save, public qy_CH3COCH3 = 1
- REAL(DP), save, public r_sol = 0.5_dp
- LOGICAL, dimension(ip_max), save, public lp = .FALSE.
- TYPE(PTR_2D_ARRAY), dimension(:), pointer, save, public jval_2d
- REAL(dp), dimension(:,:), pointer, public rh_o2_2d
- REAL(dp), dimension(:,:), pointer, public rh_o3_2d
- REAL(dp), dimension(:,:), pointer, public fhuv_2d
- REAL(dp), dimension(:,:), pointer, public fhuvdna_2d

Private Member Functions

- subroutine jval_cal_uv
- REAL function p1 (c0, c1, x)
- REAL function p2 (c0, c1, c2, x)
- REAL function p3 (c0, c1, c2, c3, x)

Private Attributes

- INTEGER, parameter MAXWAV = 7
- INTEGER, parameter dim55 = 55
- INTEGER, parameter dim58 = 58
- REAL, dimension(maxwav, 8, 4) aext
- REAL, dimension(maxwav, 8, 4) asca
- REAL, dimension(maxwav, 8, 4) aabs
- REAL, dimension(maxwav, 8, 4) ag
- REAL, dimension(maxwav), save flux
- REAL, dimension(maxwav), parameter crray = (/ 3.1995E-25, 6.7791E-26, 5.-4920E-26, 4.9733E-26, 4.2781E-26, 2.3131E-26, 3.6810E-27 /)
- REAL, dimension(maxwav), save f0

- REAL, save SR_toa_flux
- REAL, save phi_la
- INTEGER klev
- INTEGER kproma_day
- REAL, parameter press_ref = 1.E4
- REAL, parameter dens_ref = PRESS_REF/(k_B∗ 250.)∗1.E-6
- REAL, dimension(3), parameter b_la = (/ 6.84310E-01, 2.29821E-01, 8.65412E-02 /)
- REAL, dimension(3), parameter c_la = (/ 8.22114E-21, 1.77556E-20, 8.22112E-21 /)
- REAL, dimension(3), parameter d_la = (/ 6.00730E-21, 4.28569E-21, 1.28059E-20 /)
- REAL, dimension(3), parameter e_la = (/ 8.21666E-21, 1.63296E-20, 4.85121E-17 /)
- INTEGER, dimension(:), allocatable iu0
- REAL, dimension(:,:), allocatable temp
- REAL, dimension(:,:), allocatable press
- REAL, dimension(:,:), allocatable v2s_m
- REAL, dimension(:,:), allocatable v3_du1
- REAL, dimension(:,:), allocatable v3_du2
- REAL, dimension(:,:), allocatable dlv2
- REAL, dimension(:,:), allocatable dens
- REAL, dimension(:,:,:), allocatable fint
- REAL, dimension(:,:,:), allocatable finth
- REAL, dimension(:,:), allocatable fj_corr
- REAL, dimension(:,:), allocatable tnorm_sr
- REAL, dimension(:,:), allocatable tnorm
- INTEGER, dimension(:,:), allocatable i0
- INTEGER, dimension(:,:), allocatable i1
- INTEGER, dimension(:,:), allocatable i2
- INTEGER, dimension(:,:), allocatable i3
- REAL, dimension(:,:), allocatable sig_top_o2
- REAL, dimension(:,:), allocatable sig_top_o3
- REAL, dimension(:,:), allocatable r_m
- REAL, dimension(:,:), allocatable r_o2
- REAL, dimension(maxwav), parameter fmax = (/ 2.5400E+12, 2.2200E+14, 7.-4700E+13, 8.9700E+13, 1.2600E+14, 1.1100E+15, 2.6700E+15/)
- REAL, dimension(maxwav), parameter fmin = (/ 2.3400E+12, 2.2100E+14, 7.-4300E+13, 8.9200E+13, 1.2600E+14, 1.1100E+15, 2.6700E+15/)
- REAL, dimension(maxwav), parameter f0max = (/6.97E+01, 5.1333, 1.7116-E+01, 8.930, 2.6699E+01, 18.62, 48.184/)
- REAL, dimension(maxwav), parameter f0min = (/7.2679E+01, 5.0584E+00, 1.-7139E+01, 8.9395E+00, 2.6714E+01, 1.8595E+01, 4.8184E+01/)

5.23.1 Member Function/Subroutine Documentation

5.23.1.1 subroutine, public messy_jval::aerosol_data ( )

5.23.1.2 subroutine, public messy_jval::combine_o3_fields (REAL(DP), dimension(:,:), intent(in) *input_O3*, REAL(DP), dimension(:,:), intent(in) *press_2d*, REAL(DP), dimension(:,:), intent(in) *press_h*, REAL(DP), dimension(:,:), intent(in) *o3_h*, REAL(DP), dimension(:,:), intent(in) *v3_h*, REAL(DP), dimension(:,:), intent(out) *o3_2d*, REAL(DP), dimension(:,:), intent(out) *v3_2d*)

5.23.1.3 subroutine messy_jval::jval_cal_uv ( ) `[private]`

5.23.1.4 subroutine, public messy_jval::jval_read_nml_ctrl (INTEGER, intent(out) *status*, INTEGER, intent(in) *iou*)

5.23.1.5 subroutine, public messy_jval::jval_solar_time_control (INTEGER, intent(out) *status*, REAL(DP), intent(in) *cdisse*, REAL(DP), dimension(:), intent(in), optional *val*)

5.23.1.6 subroutine, public messy_jval::jvalues (REAL, dimension(:,:), intent(in) *v3_2d,*
REAL, dimension(:), intent(in) *cossza_1d,* REAL, dimension(:,:), intent(in) *press_2d,*
REAL, dimension(:,:), intent(in) *relo3_2d,* REAL, dimension(:,:), intent(in) *rhum_2d,*
REAL, dimension(:,:), intent(in) *temp_2d,* REAL, dimension(:), intent(in) *albedo_1d,*
REAL, dimension(:,:), intent(in) *aclc_2d,* REAL, dimension(:), intent(in) *slf_1d,* REAL,
dimension(:,:), intent(in) *clp_2d,* LOGICAL, intent(in) *lmidatm,* LOGICAL, intent(in)
l_heating, INTEGER, intent(in) *pbllev* **)**

Here is the call graph for this function:
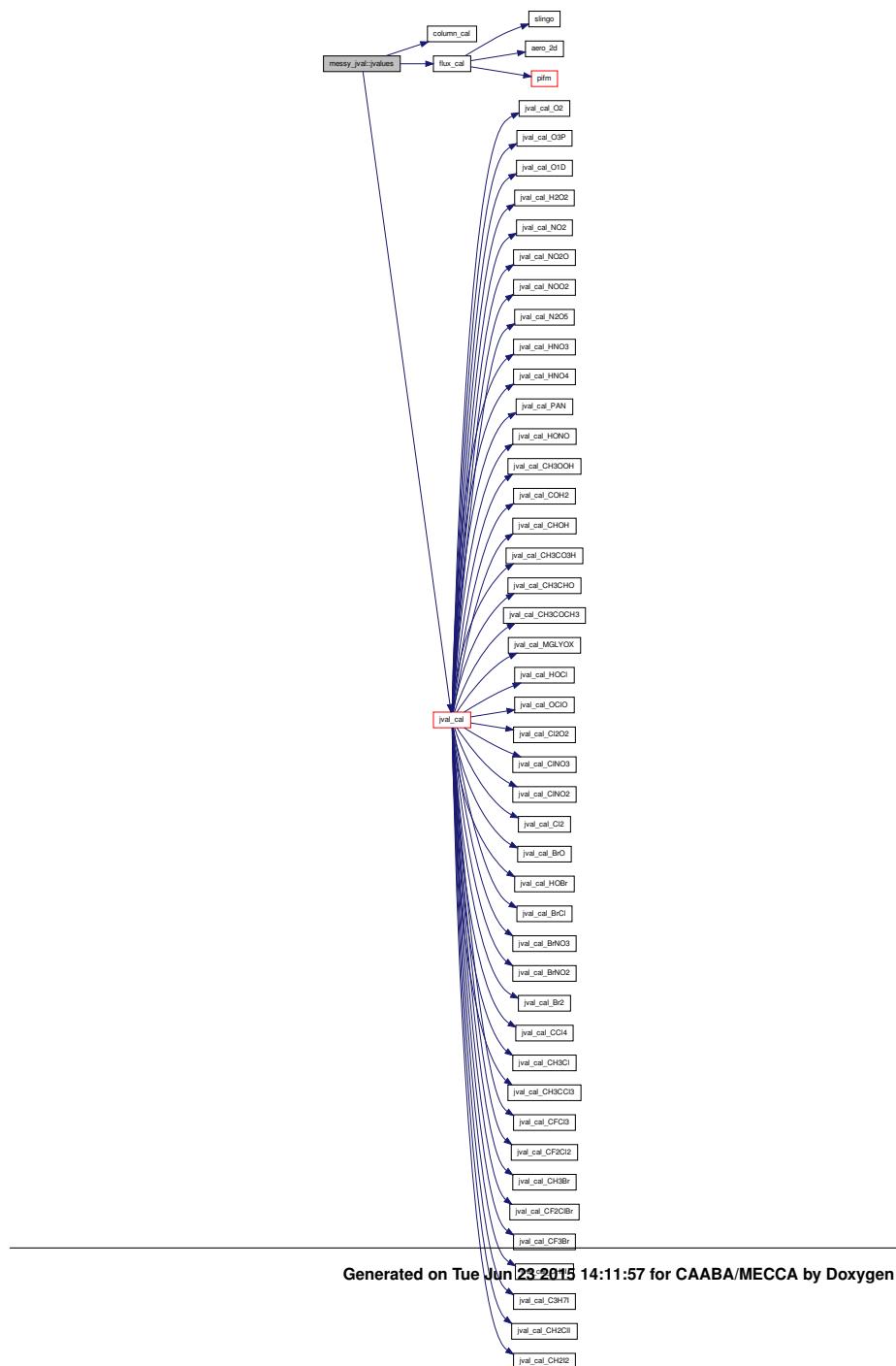
5.23.1.7 **REAL function messy_jval::p1 (REAL *c0,* REAL *c1,* REAL *x*)** `[private]`

5.23.1.8 **REAL function messy_jval::p2 (REAL *c0,* REAL *c1,* REAL *c2,* REAL *x*)** `[private]`

5.23.1.9 **REAL function messy_jval::p3 (REAL *c0,* REAL *c1,* REAL *c2,* REAL *c3,* REAL *x*)** `[private]`

5.23.2 Member Data Documentation

5.23.2.1 **REAL, dimension(maxwav,8,4) messy_jval::aabs** `[private]`

5.23.2.2 **REAL, dimension(maxwav,8,4) messy_jval::aext** `[private]`

5.23.2.3 **REAL, dimension(maxwav,8,4) messy_jval::ag** `[private]`

5.23.2.4 **REAL, dimension(maxwav,8,4) messy_jval::asca** `[private]`

5.23.2.5 **REAL, dimension(3), parameter messy_jval::b_la = (/ 6.84310E-01, 2.29821E-01, 8.65412E-02 /)** `[private]`

5.23.2.6 **REAL, dimension(3), parameter messy_jval::c_la = (/ 8.22114E-21, 1.77556E-20, 8.22112E-21 /)** `[private]`

5.23.2.7 **REAL, dimension(maxwav), parameter messy_jval::crray = (/ 3.1995E-25, 6.7791E-26, 5.4920E-26, 4.9733E-26, 4.2781E-26, 2.3131E-26, 3.6810E-27 /)** `[private]`

5.23.2.8 **REAL, dimension(3), parameter messy_jval::d_la = (/ 6.00730E-21, 4.28569E-21, 1.28059E-20 /)** `[private]`

5.23.2.9 **REAL, dimension(:,:), allocatable messy_jval::dens** `[private]`

5.23.2.10 **REAL, parameter messy_jval::dens_ref = PRESS_REF/(k_B∗ 250.)∗1.E-6** `[private]`

5.23.2.11 **INTEGER, parameter messy_jval::dim55 = 55** `[private]`

5.23.2.12 **INTEGER, parameter messy_jval::dim58 = 58** `[private]`

5.23.2.13 **REAL, dimension(:,:), allocatable messy_jval::dlv2** `[private]`

5.23.2.14 **REAL, dimension(3), parameter messy_jval::e_la = (/ 8.21666E-21, 1.63296E-20, 4.85121E-17 /)** `[private]`

5.23.2.15 **REAL, dimension(maxwav), save messy_jval::f0** `[private]`

5.23.2.16   **REAL, dimension(maxwav), parameter messy_jval::f0max = (/6.97E+01, 5.1333, 1.7116E+01, 8.930, 2.6699E+01, 18.62, 48.184/)**   [private]

5.23.2.17   **REAL, dimension(maxwav), parameter messy_jval::f0min = (/7.2679E+01, 5.0584E+00, 1.7139E+01, 8.9395E+00, 2.6714E+01, 1.8595E+01, 4.8184E+01/)**   [private]

5.23.2.18   **REAL(dp), dimension(:,:), pointer, public messy_jval::fhuv_2d**

5.23.2.19   **REAL(dp), dimension(:,:), pointer, public messy_jval::fhuvdna_2d**

5.23.2.20   **REAL, dimension(:,:,:), allocatable messy_jval::fint**   [private]

5.23.2.21   **REAL, dimension(:,:,:), allocatable messy_jval::finth**   [private]

5.23.2.22   **REAL, dimension(:,:), allocatable messy_jval::fj_corr**   [private]

5.23.2.23   **REAL, dimension(maxwav), save messy_jval::flux**   [private]

5.23.2.24   **REAL, dimension(maxwav), parameter messy_jval::fmax = (/ 2.5400E+12, 2.2200E+14, 7.4700E+13, 8.9700E+13, 1.2600E+14, 1.1100E+15, 2.6700E+15/)**   [private]

5.23.2.25   **REAL, dimension(maxwav), parameter messy_jval::fmin = (/ 2.3400E+12, 2.2100E+14, 7.4300E+13, 8.9200E+13, 1.2600E+14, 1.1100E+15, 2.6700E+15/)**   [private]

5.23.2.26   **INTEGER, dimension(:,:), allocatable messy_jval::i0**   [private]

5.23.2.27   **INTEGER, dimension(:,:), allocatable messy_jval::i1**   [private]

5.23.2.28   **INTEGER, dimension(:,:), allocatable messy_jval::i2**   [private]

5.23.2.29   **INTEGER, dimension(:,:), allocatable messy_jval::i3**   [private]

5.23.2.30   **INTEGER, dimension(:), allocatable messy_jval::iu0**   [private]

5.23.2.31   **TYPE(PTR_2D_ARRAY), dimension(:), pointer, save, public messy_jval::jval_2d**

5.23.2.32   **INTEGER messy_jval::klev**   [private]

5.23.2.33   **INTEGER messy_jval::kproma_day**   [private]

5.23.2.34   **LOGICAL, dimension(ip_max), save, public messy_jval::lp = .FALSE.**

5.23.2.35   **INTEGER, parameter messy_jval::MAXWAV = 7**   [private]

5.23.2.36   **CHARACTER(LEN=∗), parameter, public messy_jval::modstr = 'jval'**

5.23.2.37 CHARACTER(LEN=∗), parameter, public messy_jval::modver = '14'

5.23.2.38 REAL, save messy_jval::phi_la `[private]`

5.23.2.39 REAL, dimension(:,:), allocatable messy_jval::press `[private]`

5.23.2.40 REAL, parameter messy_jval::press_ref = 1.E4 `[private]`

5.23.2.41 INTEGER, save, public messy_jval::qy_CH3COCH3 = 1

5.23.2.42 REAL, dimension(:,:), allocatable messy_jval::r_m `[private]`

5.23.2.43 REAL, dimension(:,:), allocatable messy_jval::r_o2 `[private]`

5.23.2.44 REAL(DP), save, public messy_jval::r_sol = 0.5_dp

5.23.2.45 REAL(dp), dimension(:,:), pointer, public messy_jval::rh_o2_2d

5.23.2.46 REAL(dp), dimension(:,:), pointer, public messy_jval::rh_o3_2d

5.23.2.47 REAL, dimension(:,:), allocatable messy_jval::sig_top_o2 `[private]`

5.23.2.48 REAL, dimension(:,:), allocatable messy_jval::sig_top_o3 `[private]`

5.23.2.49 REAL, save messy_jval::SR_toa_flux `[private]`

5.23.2.50 REAL, dimension(:,:), allocatable messy_jval::temp `[private]`

5.23.2.51 REAL, dimension(:,:), allocatable messy_jval::tnorm `[private]`

5.23.2.52 REAL, dimension(:,:), allocatable messy_jval::tnorm_sr `[private]`

5.23.2.53 REAL, dimension(:,:), allocatable messy_jval::v2s_m `[private]`

5.23.2.54 REAL, dimension(:,:), allocatable messy_jval::v3_du1 `[private]`

5.23.2.55 REAL, dimension(:,:), allocatable messy_jval::v3_du2 `[private]`

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_jval.f90

5.24 messy_jval_box Module Reference

Public Member Functions

- subroutine, public jval_init

- subroutine, public jval_physc
- subroutine, public jval_finish
- subroutine, public jval_result

Private Attributes

- INTEGER ncid_jval
- INTEGER, parameter nsza = 1
- INTEGER nlev
- REAL(DP), dimension(:,:), allocatable v3
- REAL(DP), dimension(:,:), allocatable jpress
- REAL(DP), dimension(:,:), allocatable relo3
- REAL(DP), dimension(:,:), allocatable jrhum
- REAL(DP), dimension(:,:), allocatable jtemp
- REAL(DP), dimension(:), allocatable albedo
- REAL(DP), dimension(:,:), allocatable aclc
- REAL(DP), dimension(:), allocatable slf
- REAL(DP), dimension(:,:), allocatable clp
- LOGICAL lmidatm
- LOGICAL l_heating
- INTEGER pbllev

5.24.1 Member Function/Subroutine Documentation

5.24.1.1 subroutine, public messy_jval_box::jval_finish ( )

5.24.1.2 subroutine, public messy_jval_box::jval_init ( )

Here is the call graph for this function:
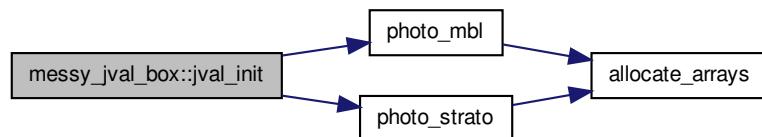
5.24.1.3   subroutine, public messy_jval_box::jval_physc ( )

5.24.1.4   subroutine, public messy_jval_box::jval_result ( )

5.24.2   Member Data Documentation

5.24.2.1   REAL(DP), dimension(:,:), allocatable messy_jval_box::aclc `[private]`

5.24.2.2   REAL(DP), dimension(:), allocatable messy_jval_box::albedo `[private]`

5.24.2.3   REAL(DP), dimension(:,:), allocatable messy_jval_box::clp `[private]`

5.24.2.4   REAL(DP), dimension(:,:), allocatable messy_jval_box::jpress `[private]`

5.24.2.5   REAL(DP), dimension(:,:), allocatable messy_jval_box::jrhum `[private]`

5.24.2.6   REAL(DP), dimension(:,:), allocatable messy_jval_box::jtemp `[private]`

5.24.2.7   LOGICAL messy_jval_box::l_heating `[private]`

5.24.2.8   LOGICAL messy_jval_box::lmidatm `[private]`

5.24.2.9   INTEGER messy_jval_box::ncid_jval `[private]`

5.24.2.10   INTEGER messy_jval_box::nlev `[private]`

5.24.2.11   INTEGER, parameter messy_jval_box::nsza = 1 `[private]`

5.24.2.12   INTEGER messy_jval_box::pbllev `[private]`

5.24.2.13   REAL(DP), dimension(:,:), allocatable messy_jval_box::relo3 `[private]`

5.24.2.14   REAL(DP), dimension(:), allocatable messy_jval_box::slf `[private]`

5.24.2.15   REAL(DP), dimension(:,:), allocatable messy_jval_box::v3 `[private]`

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_jval_box.f90

5.25   messy_main_blather Module Reference

Public Member Functions

- subroutine, public start_message (modstr, str, substr, l_print)
- subroutine, public end_message (modstr, str, substr, l_print)

- subroutine, public info (string, substr, l_print)
- subroutine, public warning (string, substr, l_print)

5.25.1 Member Function/Subroutine Documentation

5.25.1.1 subroutine, public **messy_main_blather::end_message (CHARACTER(LEN=∗), intent(in) *modstr,* CHARACTER(LEN=∗), intent(in) *str,* CHARACTER(LEN=∗), intent(in) *substr,* LOGICAL, intent(in), optional *l_print*)**

5.25.1.2 subroutine, public **messy_main_blather::info (CHARACTER(LEN=∗), intent(in) *string,* CHARACTER(LEN=∗), intent(in), optional *substr,* LOGICAL, intent(in), optional *l_print*)**

5.25.1.3 subroutine, public **messy_main_blather::start_message (CHARACTER(LEN=∗), intent(in) *modstr,* CHARACTER(LEN=∗), intent(in) *str,* CHARACTER(LEN=∗), intent(in) *substr,* LOGICAL, intent(in), optional *l_print*)**

5.25.1.4 subroutine, public **messy_main_blather::warning (CHARACTER(LEN=∗), intent(in) *string,* CHARACTER(LEN=∗), intent(in) *substr,* LOGICAL, intent(in), optional *l_print*)**

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_blather.f90

5.26   messy_main_constants_mem Module Reference

Public Attributes

- CHARACTER(LEN=∗), parameter modstr = 'MESSy'
- CHARACTER(LEN=∗), parameter modver = 'd2.50s'
- INTEGER, parameter sp = SELECTED_REAL_KIND(6, 37)
- INTEGER, parameter dp = SELECTED_REAL_KIND(12, 307)
- INTEGER, parameter i4 = SELECTED_INT_KIND(9)
- INTEGER, parameter i8 = SELECTED_INT_KIND(14)
- INTEGER, parameter wp = dp
- REAL(DP), parameter TINY_DP = TINY(0._dp)
- REAL(DP), parameter HUGE_DP = HUGE(0._dp)
- REAL(DP), parameter BIG_DP = 1E40_dp
- INTEGER, parameter nerr = 6
- REAL(DP), parameter FLAGGED_BAD = -1.0E+34_dp
- CHARACTER(LEN=∗), parameter HLINE1 = '∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗'// '∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗∗'
- CHARACTER(LEN=∗), parameter HLINE2 = '------------------------------------'// '------------------------------------'

- CHARACTER(LEN=∗), parameter HLINE3 = '....................................'//
  '....................................'
- INTEGER, parameter STRLEN_SHORT = 8
- INTEGER, parameter STRLEN_MEDIUM = 24
- INTEGER, parameter STRLEN_LONG = 64
- INTEGER, parameter STRLEN_VLONG = 80
- INTEGER, parameter STRLEN_ULONG = 256
- INTEGER, parameter STRLEN_XLONG = 512
- INTEGER, parameter STRLEN_KPPSPECIES = 15
- REAL(dp), parameter pi = 3.14159265358979323846_dp
- REAL(dp), parameter R_gas = 8.3144621_dp
- REAL(dp), parameter h_Planck = 6.62606957E34_dp
- REAL(dp), parameter c_light = 2.99792458E8_dp
- REAL(dp), parameter stbo = 5.670373E-8_dp
- REAL(dp), parameter N_A = 6.02214129E23_dp
- REAL(dp), parameter N_A_kmol = 6.02214129E26_dp
- REAL(dp), parameter g = 9.80665_dp
- REAL(dp), parameter T0 = 298.15_dp
- REAL(dp), parameter T0_INV = 1._DP / T0
- REAL(dp), parameter atm2Pa = 101325._dp
- REAL(dp), parameter cal2J = 4.1868_dp
- REAL(dp), parameter k_B = 1.3806488E-23_dp
- REAL(dp), parameter c_vKar = 0.4_dp
- REAL(dp), parameter stDTDZ = 0.0065_dp
- REAL(dp), parameter MH = 1.01_dp
- REAL(dp), parameter MD = 2.01_dp
- REAL(dp), parameter M13C = 13.00_dp
- REAL(dp), parameter M12C = 12.00_dp
- REAL(dp), parameter MC = 12.01_dp
- REAL(dp), parameter MN = 14.01_dp
- REAL(dp), parameter M18O = 18.00_dp
- REAL(dp), parameter MF = 19.00_dp
- REAL(dp), parameter MNa = 22.99_dp
- REAL(dp), parameter MO = 16.00_dp
- REAL(dp), parameter MS = 32.07_dp
- REAL(dp), parameter MCl = 35.45_dp
- REAL(dp), parameter MBr = 79.90_dp
- REAL(dp), parameter MI = 126.90_dp
- REAL(dp), parameter MHg = 200.59_dp
- REAL(dp), parameter M_O3 = MO∗3._dp
- REAL(dp), parameter M_O2 = MO∗2._dp
- REAL(dp), parameter M_H2O = MH∗2._dp + MO
- REAL(dp), parameter M_HDO = MH + MD + MO
- REAL(dp), parameter M_HH18O = MH∗2._dp+ M18O
- REAL(dp), parameter M_N2 = MN∗2._dp
- REAL(dp), parameter tmelt = 273.15_dp

- REAL(dp), parameter ttrip = 273.16_dp
- REAL(dp), parameter rho_H2O = 999.97_dp
- REAL(dp), parameter rho_sea = 1025._dp
- REAL(dp), parameter M_air = 28.970_dp
- REAL(dp), parameter cp_air = 1005.46_dp
- REAL(dp), parameter alv = 2.5008e6_dp
- REAL(dp), parameter als = 2.8345e6_dp
- REAL(dp), parameter alf = als-alv
- REAL(dp), parameter rd = 1000._dp ∗ R_gas/M_air
- REAL(dp), parameter rv = 1000._dp ∗ R_gas/M_H2O
- REAL(dp), parameter cpv = 1869.46_dp
- REAL(dp), parameter vtmpc1 = M_air / M_H2O - 1.0_dp
- REAL(dp), parameter vtmpc2 = cpv/cp_air-1.0_dp
- REAL(dp), parameter MM_eps = M_H2O/M_air
- REAL(dp), save ceffmin = 10.0_dp
- REAL(dp), parameter ceffmax = 150.0_dp
- REAL(dp), save ccwmin = 1.0e-7_dp
- REAL(dp), parameter cemiss = 0.996_dp
- REAL(dp), parameter radius_earth = 6371000.0_dp
- REAL(dp), parameter OneDay = 86400.0_dp
- REAL(dp), parameter OneSiderialDay = 86164.0_dp
- REAL(dp), parameter omega = 0.7292E-4_dp
- REAL(dp), parameter solc = 1365.0_dp
- REAL(dp), parameter crae = 0.1277e-02_dp
- REAL(dp), parameter clw = 4186.84_dp
- REAL(dp), parameter csw = 3994._dp
- REAL(dp), parameter ctfreez = 271.38_dp
- REAL(dp), parameter AM = 1.673e-27
- REAL(dp), parameter ELCH = 1.602E-19
- REAL(dp), parameter TWOPI = pi∗2._dp
- REAL(dp), parameter PI_2 = pi∗0.5_dp
- REAL(dp), parameter DTR = pi/180._dp
- REAL(dp), parameter RTD = 180._dp/pi

5.26.1 Member Data Documentation

5.26.1.1 REAL(dp), parameter **messy_main_constants_mem::alf = als-alv**

5.26.1.2 REAL(dp), parameter **messy_main_constants_mem::als = 2.8345e6_dp**

5.26.1.3 REAL(dp), parameter **messy_main_constants_mem::alv = 2.5008e6_dp**

5.26.1.4 REAL(dp), parameter **messy_main_constants_mem::AM = 1.673e-27**

5.26.1.5 REAL(dp), parameter **messy_main_constants_mem::atm2Pa = 101325._dp**

5.26.1.6 REAL(DP), parameter messy_main_constants_mem::BIG_DP = 1E40_dp

5.26.1.7 REAL(dp), parameter messy_main_constants_mem::c_light = 2.99792458E8_dp

5.26.1.8 REAL(dp), parameter messy_main_constants_mem::c_vKar = 0.4_dp

5.26.1.9 REAL(dp), parameter messy_main_constants_mem::cal2J = 4.1868_dp

5.26.1.10 REAL(dp), save messy_main_constants_mem::ccwmin = 1.0e-7_dp

5.26.1.11 REAL(dp), parameter messy_main_constants_mem::ceffmax = 150.0_dp

5.26.1.12 REAL(dp), save messy_main_constants_mem::ceffmin = 10.0_dp

5.26.1.13 REAL(dp), parameter messy_main_constants_mem::cemiss = 0.996_dp

5.26.1.14 REAL(dp), parameter messy_main_constants_mem::clw = 4186.84_dp

5.26.1.15 REAL(dp), parameter messy_main_constants_mem::cp_air = 1005.46_dp

5.26.1.16 REAL(dp), parameter messy_main_constants_mem::cpv = 1869.46_dp

5.26.1.17 REAL(dp), parameter messy_main_constants_mem::crae = 0.1277e-02_dp

5.26.1.18 REAL(dp), parameter messy_main_constants_mem::csw = 3994._dp

5.26.1.19 REAL(dp), parameter messy_main_constants_mem::ctfreez = 271.38_dp

5.26.1.20 INTEGER, parameter messy_main_constants_mem::dp = SELECTED_REAL_KIND(12, 307)

5.26.1.21 REAL(dp), parameter messy_main_constants_mem::DTR = pi/180._dp

5.26.1.22 REAL(dp), parameter messy_main_constants_mem::ELCH = 1.602E-19

5.26.1.23 REAL(DP), parameter messy_main_constants_mem::FLAGGED_BAD = -1.0E+34_dp

5.26.1.24 REAL(dp), parameter messy_main_constants_mem::g = 9.80665_dp

5.26.1.25 REAL(dp), parameter messy_main_constants_mem::h_Planck = 6.62606957E34_dp

5.26.1.26 CHARACTER(LEN=∗), parameter messy_main_constants_mem::HLINE1 = '*********************************'// '***********************************'**

5.26.1.27 CHARACTER(LEN=∗), parameter messy_main_constants_mem::HLINE2 = '----------------------------------'// '----------------------------------'

5.26.1.28 CHARACTER(LEN=∗), parameter messy_main_constants_mem::HLINE3 = '..................................'// '..................................'

5.26.1.29 REAL(DP), parameter messy_main_constants_mem::HUGE_DP = HUGE(0._dp)

5.26.1.30 INTEGER, parameter messy_main_constants_mem::i4 = SELECTED_INT_KIND(9)

5.26.1.31 INTEGER, parameter messy_main_constants_mem::i8 = SELECTED_INT_KIND(14)

5.26.1.32 REAL(dp), parameter messy_main_constants_mem::k_B = 1.3806488E-23_dp

5.26.1.33 REAL(dp), parameter messy_main_constants_mem::M12C = 12.00_dp

5.26.1.34 REAL(dp), parameter messy_main_constants_mem::M13C = 13.00_dp

5.26.1.35 REAL(dp), parameter messy_main_constants_mem::M18O = 18.00_dp

5.26.1.36 REAL(dp), parameter messy_main_constants_mem::M_air = 28.970_dp

5.26.1.37 REAL(dp), parameter messy_main_constants_mem::M_H2O = MH∗2._dp + MO

5.26.1.38 REAL(dp), parameter messy_main_constants_mem::M_HDO = MH + MD + MO

5.26.1.39 REAL(dp), parameter messy_main_constants_mem::M_HH18O = MH∗2._dp+ M18O

5.26.1.40 REAL(dp), parameter messy_main_constants_mem::M_N2 = MN∗2._dp

5.26.1.41 REAL(dp), parameter messy_main_constants_mem::M_O2 = MO∗2._dp

5.26.1.42 REAL(dp), parameter messy_main_constants_mem::M_O3 = MO∗3._dp

5.26.1.43 REAL(dp), parameter messy_main_constants_mem::MBr = 79.90_dp

5.26.1.44 REAL(dp), parameter messy_main_constants_mem::MC = 12.01_dp

5.26.1.45 REAL(dp), parameter messy_main_constants_mem::MCl = 35.45_dp

5.26.1.46 REAL(dp), parameter messy_main_constants_mem::MD = 2.01_dp

5.26.1.47 **REAL(dp), parameter messy_main_constants_mem::MF = 19.00₋dp**

5.26.1.48 **REAL(dp), parameter messy_main_constants_mem::MH = 1.01₋dp**

5.26.1.49 **REAL(dp), parameter messy_main_constants_mem::MHg = 200.59₋dp**

5.26.1.50 **REAL(dp), parameter messy_main_constants_mem::MI = 126.90₋dp**

5.26.1.51 **REAL(dp), parameter messy_main_constants_mem::MM_eps = M_H2O/M_air**

5.26.1.52 **REAL(dp), parameter messy_main_constants_mem::MN = 14.01₋dp**

5.26.1.53 **REAL(dp), parameter messy_main_constants_mem::MNa = 22.99₋dp**

5.26.1.54 **REAL(dp), parameter messy_main_constants_mem::MO = 16.00₋dp**

5.26.1.55 **CHARACTER(LEN=∗), parameter messy_main_constants_mem::modstr = 'MESSy'**

5.26.1.56 **CHARACTER(LEN=∗), parameter messy_main_constants_mem::modver = 'd2.50s'**

5.26.1.57 **REAL(dp), parameter messy_main_constants_mem::MS = 32.07₋dp**

5.26.1.58 **REAL(dp), parameter messy_main_constants_mem::N_A = 6.02214129E23₋dp**

5.26.1.59 **REAL(dp), parameter messy_main_constants_mem::N_A_kmol = 6.02214129E26₋dp**

5.26.1.60 **INTEGER, parameter messy_main_constants_mem::nerr = 6**

5.26.1.61 **REAL(dp), parameter messy_main_constants_mem::omega = 0.7292E-4₋dp**

5.26.1.62 **REAL(dp), parameter messy_main_constants_mem::OneDay = 86400.0₋dp**

5.26.1.63 **REAL(dp), parameter messy_main_constants_mem::OneSiderialDay = 86164.0₋dp**

5.26.1.64 **REAL(dp), parameter messy_main_constants_mem::pi = 3.14159265358979323846₋dp**

5.26.1.65 **REAL(dp), parameter messy_main_constants_mem::PI_2 = pi∗0.5₋dp**

5.26.1.66 **REAL(dp), parameter messy_main_constants_mem::R_gas = 8.3144621₋dp**

5.26.1.67 **REAL(dp), parameter messy_main_constants_mem::radius_earth = 6371000.0₋dp**

5.26.1.68 REAL(dp), parameter messy_main_constants_mem::rd = 1000._dp $*$ R_gas/M_air

5.26.1.69 REAL(dp), parameter messy_main_constants_mem::rho_H2O = 999.97_dp

5.26.1.70 REAL(dp), parameter messy_main_constants_mem::rho_sea = 1025._dp

5.26.1.71 REAL(dp), parameter messy_main_constants_mem::RTD = 180._dp/pi

5.26.1.72 REAL(dp), parameter messy_main_constants_mem::rv = 1000._dp $*$ R_gas/M_H2O

5.26.1.73 REAL(dp), parameter messy_main_constants_mem::solc = 1365.0_dp

5.26.1.74 INTEGER, parameter messy_main_constants_mem::sp = SELECTED_REAL_KIND(6, 37)

5.26.1.75 REAL(dp), parameter messy_main_constants_mem::stbo = 5.670373E-8_dp

5.26.1.76 REAL(dp), parameter messy_main_constants_mem::stDTDZ = 0.0065_dp

5.26.1.77 INTEGER, parameter messy_main_constants_mem::STRLEN_KPPSPECIE-S = 15

5.26.1.78 INTEGER, parameter messy_main_constants_mem::STRLEN_LONG = 64

5.26.1.79 INTEGER, parameter messy_main_constants_mem::STRLEN_MEDIUM = 24

5.26.1.80 INTEGER, parameter messy_main_constants_mem::STRLEN_SHORT = 8

5.26.1.81 INTEGER, parameter messy_main_constants_mem::STRLEN_ULONG = 256

5.26.1.82 INTEGER, parameter messy_main_constants_mem::STRLEN_VLONG = 80

5.26.1.83 INTEGER, parameter messy_main_constants_mem::STRLEN_XLONG = 512

5.26.1.84 REAL(dp), parameter messy_main_constants_mem::T0 = 298.15_dp

5.26.1.85 REAL(dp), parameter messy_main_constants_mem::T0_INV = 1._DP / T0

5.26.1.86 REAL(DP), parameter messy_main_constants_mem::TINY_DP = TINY(0._dp)

5.26.1.87 REAL(dp), parameter messy_main_constants_mem::tmelt = 273.15_dp

5.26.1.88 REAL(dp), parameter messy_main_constants_mem::ttrip = 273.16_dp

5.26.1.89 REAL(dp), parameter messy_main_constants_mem::TWOPI = pi$*$2._dp

5.26.1.90 REAL(dp), parameter messy_main_constants_mem::vtmpc1 = M_air / M_H2O - 1.0_dp

5.26.1.91 REAL(dp), parameter messy_main_constants_mem::vtmpc2 = cpv/cp_air-1.0_dp

5.26.1.92 INTEGER, parameter messy_main_constants_mem::wp = dp

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_constants_mem.f90

5.27 messy_main_control_cb Module Reference

Public Member Functions

- subroutine messy_init
- subroutine messy_physc
- subroutine messy_result
- subroutine messy_finish

5.27.1 Member Function/Subroutine Documentation

5.27.1.1 subroutine messy_main_control_cb::messy_finish ( )

5.27.1.2 subroutine messy_main_control_cb::messy_init ( )

5.27.1.3 subroutine messy_main_control_cb::messy_physc ( )

5.27.1.4 subroutine messy_main_control_cb::messy_result ( )

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_control_cb.f90

5.28 messy_main_rnd Module Reference

Data Types

- interface rnd_jump

Public Member Functions

- subroutine, public rnd_init (status, id, method, pseed)
- subroutine, public rnd_seed (id, size, put, get)
- subroutine rnd_jump_2 (status, id, n, p, get)
- subroutine, public rnd_number (id, harvest, get)
- subroutine, public rnd_finish (id)

Public Attributes

- CHARACTER(LEN=∗), parameter, public modstr = 'rnd'
- CHARACTER(len=∗), parameter, public modver = '1.1'
- INTEGER, parameter, public RND_F90 = 1
- INTEGER, parameter, public RND_MTW = 2
- INTEGER, parameter, public RND_LUX = 3
- INTEGER, parameter, public RND_F90_GAUSS = 4
- INTEGER, parameter, public RND_MTW_GAUSS = 5
- INTEGER, parameter, public RND_LUX_GAUSS = 6
- INTEGER, parameter, public RND_MAX_METHOD = 6
- CHARACTER(LEN=12), dimension(rnd_max_method), public RND_REPR_NA-ME = (/ 'REPR_RND_F90', 'REPR_RND_MTW', 'REPR_RND_LUX', 'REPR_R-ND_F90', 'REPR_RND_MTW', 'REPR_RND_LUX' /)
- CHARACTER(LEN=11), dimension(rnd_max_method), public RND_DIM_NAM-E = (/ 'DIM_RND_F90', 'DIM_RND_MTW', 'DIM_RND_LUX', 'DIM_RND_F90', 'DIM_RND_MTW', 'DIM_RND_LUX' /)
- INTEGER, parameter, public ID_MAX = 20
- INTEGER, dimension(id_max), public nstate = 0
- INTEGER, dimension(id_max), public rnd_method
- TYPE(PTR_1D_ARRAY_INT), dimension(id_max), public state

Private Member Functions

- subroutine rnd_jump_n (status, id, n, get)

Private Attributes

- INTEGER, parameter N_MAX_EXP = 20
- LOGICAL, dimension(n_max_exp) lpoly = .FALSE.
- INTEGER, dimension(0:nn, n_max_exp) pcoeff

5.28.1 Member Function/Subroutine Documentation

5.28.1.1 subroutine, public messy_main_rnd::rnd_finish (INTEGER, intent(in) *id*)

5.28.1.2 subroutine, public messy_main_rnd::rnd_init (INTEGER, intent(out) *status,* INTEGER, intent(out) *id,* INTEGER, intent(in) *method,* INTEGER, intent(in), optional *pseed*)

5.28.1.3 subroutine messy_main_rnd::rnd_jump_2 (INTEGER, intent(out) *status,* INTEGER, intent(in) *id,* INTEGER, intent(in) *n,* INTEGER, intent(in) *p,* INTEGER, dimension(:), intent(out), optional *get*)

5.28.1.4 subroutine messy_main_rnd::rnd_jump_n (INTEGER, intent(out) *status,* INTEGER, intent(in) *id,* INTEGER, intent(in) *n,* INTEGER, dimension(:), intent(out), optional *get*) `[private]`

5.28.1.5 subroutine, public messy_main_rnd::rnd_number (INTEGER, intent(in) *id,* REAL(DP), dimension(:), intent(out) *harvest,* INTEGER, dimension(:), intent(out), optional *get*)

5.28.1.6 subroutine, public messy_main_rnd::rnd_seed (INTEGER, intent(in) *id,* INTEGER, intent(out), optional *size,* INTEGER, dimension(:), intent(in), optional *put,* INTEGER, dimension(:), intent(out), optional *get*)

5.28.2 Member Data Documentation

5.28.2.1 INTEGER, parameter, public messy_main_rnd::ID_MAX = 20

5.28.2.2 LOGICAL, dimension(n_max_exp) messy_main_rnd::lpoly = .FALSE. `[private]`

5.28.2.3 CHARACTER(LEN=∗), parameter, public messy_main_rnd::modstr = 'rnd'

5.28.2.4 CHARACTER(len=∗), parameter, public messy_main_rnd::modver = '1.1'

5.28.2.5 INTEGER, parameter messy_main_rnd::N_MAX_EXP = 20 `[private]`

5.28.2.6 INTEGER, dimension(id_max), public messy_main_rnd::nstate = 0

5.28.2.7 INTEGER, dimension(0:nn, n_max_exp) messy_main_rnd::pcoeff `[private]`

5.28.2.8 CHARACTER(LEN=11), dimension(rnd_max_method), public messy_main_rnd::RND_DIM_NAME = (/ 'DIM_RND_F90', 'DIM_RND_MTW', 'DIM_RND_LUX', 'DIM_RND_F90', 'DIM_RND_MTW', 'DIM_RND_LUX' /)

5.28.2.9 INTEGER, parameter, public messy_main_rnd::RND_F90 = 1

5.28.2.10 INTEGER, parameter, public messy_main_rnd::RND_F90_GAUSS = 4

5.28.2.11 INTEGER, parameter, public messy_main_rnd::RND_LUX = 3

5.28.2.12 INTEGER, parameter, public messy_main_rnd::RND_LUX_GAUSS = 6

5.28.2.13 INTEGER, parameter, public messy_main_rnd::RND_MAX_METHOD = 6

5.28.2.14 INTEGER, dimension(id_max), public messy_main_rnd::rnd_method

5.28.2.15 INTEGER, parameter, public messy_main_rnd::RND_MTW = 2

5.28.2.16 INTEGER, parameter, public messy_main_rnd::RND_MTW_GAUSS = 5

5.28.2.17 CHARACTER(LEN=12), dimension(rnd_max_method), public messy_main_rnd::RND_REPR_NAME = (/ 'REPR_RND_F90', 'REPR_RND_MTW', 'REPR_RND_LUX', 'REPR_RND_F90', 'REPR_RND_MTW', 'REPR_RND_LUX' /)

5.28.2.18 TYPE(PTR_1D_ARRAY_INT), dimension(id_max), public messy_main_rnd::state

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd.f90

5.29 messy_main_rnd_lux Module Reference

Public Member Functions

- subroutine ranlux (rvec, lenv)
- subroutine rluxin
- subroutine rluxut
- subroutine rluxat (lout, inout, k1, k2)
- subroutine rluxgo (lux, ins, k1, k2)

Public Attributes

- INTEGER, dimension(25), public isdext
- INTEGER, parameter maxlev = 4
- INTEGER, parameter lxdflt = 3
- INTEGER, parameter jsdflt = 314159265
- INTEGER, dimension(0:maxlev), public ndskip = (/ 0, 24, 73, 199, 365 /)
- INTEGER igiga = 1000000000
- INTEGER, public i24 = 24
- INTEGER, public j24 = 10
- REAL, parameter twop12 = 4096.
- INTEGER, parameter itwo24 = 2**24
- INTEGER, parameter icons = 2147483563

- INTEGER, dimension(24), save, public next
- INTEGER, save, public luxlev = lxdflt
- INTEGER, save, public nskip
- INTEGER, save, public inseed
- INTEGER, save jseed
- LOGICAL, save, public notyet = .true.
- INTEGER, public in24 = 0
- INTEGER, public kount = 0
- INTEGER, public mkount = 0
- REAL, dimension(24), save, public seeds
- REAL, save, public carry = 0.
- REAL, save, public twom24
- REAL, save, public twom12

5.29.1 Member Function/Subroutine Documentation

5.29.1.1 subroutine **messy_main_rnd_lux::ranlux (** REAL, dimension(lenv), intent(out) *rvec,* INTEGER, intent(in) *lenv* **)**

5.29.1.2 subroutine **messy_main_rnd_lux::rluxat (** INTEGER, intent(out) *lout,* INTEGER, intent(out) *inout,* INTEGER, intent(out) *k1,* INTEGER, intent(out) *k2* **)**

5.29.1.3 subroutine **messy_main_rnd_lux::rluxgo (** INTEGER, intent(in) *lux,* INTEGER, intent(in) *ins,* INTEGER, intent(in) *k1,* INTEGER, intent(in) *k2* **)**

5.29.1.4 subroutine **messy_main_rnd_lux::rluxin (** **)**

5.29.1.5 subroutine **messy_main_rnd_lux::rluxut (** **)**

5.29.2 Member Data Documentation

5.29.2.1 REAL, save, public **messy_main_rnd_lux::carry = 0.**

5.29.2.2 INTEGER, public **messy_main_rnd_lux::i24 = 24**

5.29.2.3 INTEGER, parameter **messy_main_rnd_lux::icons = 2147483563**

5.29.2.4 INTEGER **messy_main_rnd_lux::igiga = 1000000000**

5.29.2.5 INTEGER, public **messy_main_rnd_lux::in24 = 0**

5.29.2.6 INTEGER, save, public **messy_main_rnd_lux::inseed**

5.29.2.7 INTEGER, dimension(25), public **messy_main_rnd_lux::isdext**

5.29.2.8 INTEGER, parameter **messy_main_rnd_lux::itwo24 = 2∗∗24**

5.29.2.9   INTEGER, public messy_main_rnd_lux::j24 = 10

5.29.2.10   INTEGER, parameter messy_main_rnd_lux::jsdflt = 314159265

5.29.2.11   INTEGER, save messy_main_rnd_lux::jseed

5.29.2.12   INTEGER, public messy_main_rnd_lux::kount = 0

5.29.2.13   INTEGER, save, public messy_main_rnd_lux::luxlev = lxdflt

5.29.2.14   INTEGER, parameter messy_main_rnd_lux::lxdflt = 3

5.29.2.15   INTEGER, parameter messy_main_rnd_lux::maxlev = 4

5.29.2.16   INTEGER, public messy_main_rnd_lux::mkount = 0

5.29.2.17   INTEGER, dimension(0:maxlev), public messy_main_rnd_lux::ndskip = (/ 0, 24, 73, 199, 365 /)

5.29.2.18   INTEGER, dimension(24), save, public messy_main_rnd_lux::next

5.29.2.19   LOGICAL, save, public messy_main_rnd_lux::notyet = .true.

5.29.2.20   INTEGER, save, public messy_main_rnd_lux::nskip

5.29.2.21   REAL, dimension(24), save, public messy_main_rnd_lux::seeds

5.29.2.22   REAL, save, public messy_main_rnd_lux::twom12

5.29.2.23   REAL, save, public messy_main_rnd_lux::twom24

5.29.2.24   REAL, parameter messy_main_rnd_lux::twop12 = 4096.

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_lux.-
  f90

5.30   messy_main_rnd_mtw Module Reference

Public Member Functions

- subroutine, public init_genrand (s)
- subroutine, public init_by_array (init_key)
- integer(kind=wi) function, public genrand_int32 ()
- integer(kind=wi) function, public genrand_int31 ()

- real(kind=wr) function, public genrand_real1 ()
- real(kind=wr) function, public genrand_real2 ()
- real(kind=wr) function, public genrand_real3 ()
- real(kind=wr) function, public genrand_res53 ()

Public Attributes

- integer, parameter, public wi = intg
- integer, parameter, public wl = long
- integer, parameter, public wr = dobl
- integer(kind=wi), dimension(n), public mt
- logical(kind=wi), public mtinit = .false._wi
- integer(kind=wi), public mti = n + 1_wi

Private Member Functions

- elemental function uiadd (a, b)
- elemental function uisub (a, b)
- elemental function uimlt (a, b)

Private Attributes

- integer, parameter intg = selected_int_kind(9)
- integer, parameter long = selected_int_kind(18)
- integer, parameter flot = selected_real_kind(6, 37)
- integer, parameter dobl = selected_real_kind(15, 307)
- integer(kind=wi), parameter n = 624_wi
- integer(kind=wi), parameter m = 397_wi
- integer(kind=wi), parameter hbs = bit_size(n) / 2_wi
- integer(kind=wi), parameter qbs = hbs / 2_wi
- integer(kind=wi), parameter tbs = 3_wi $*$ qbs

5.30.1 Member Function/Subroutine Documentation

5.30.1.1 integer(kind = wi) function, public messy_main_rnd_mtw::genrand_int31 ( )

5.30.1.2 integer(kind = wi) function, public messy_main_rnd_mtw::genrand_int32 ( )

5.30.1.3 real(kind = wr) function, public messy_main_rnd_mtw::genrand_real1 ( )

5.30.1.4 real(kind = wr) function, public messy_main_rnd_mtw::genrand_real2 ( )

5.30.1.5 real(kind = wr) function, public messy_main_rnd_mtw::genrand_real3 ( )

5.30.1.6 real(kind = wr) function, public messy_main_rnd_mtw::genrand_res53 ( )

5.30.1.7 subroutine, public messy_main_rnd_mtw::init_by_array (integer(kind = wi), dimension(:), intent(in) *init_key*)

5.30.1.8 subroutine, public messy_main_rnd_mtw::init_genrand (integer(kind = wi), intent(in) *s*)

5.30.1.9 elemental function messy_main_rnd_mtw::uiadd (integer(kind = wi), intent(in) *a*, integer(kind = wi), intent(in) *b*) `[private]`

5.30.1.10 elemental function messy_main_rnd_mtw::uimlt (integer(kind = wi), intent(in) *a*, integer(kind = wi), intent(in) *b*) `[private]`

5.30.1.11 elemental function messy_main_rnd_mtw::uisub (integer(kind = wi), intent(in) *a*, integer(kind = wi), intent(in) *b*) `[private]`

5.30.2 Member Data Documentation

5.30.2.1 integer, parameter messy_main_rnd_mtw::dobl = selected_real_kind(15, 307) `[private]`

5.30.2.2 integer, parameter messy_main_rnd_mtw::flot = selected_real_kind(6, 37) `[private]`

5.30.2.3 integer(kind = wi), parameter messy_main_rnd_mtw::hbs = bit_size(n) / 2_wi `[private]`

5.30.2.4 integer, parameter messy_main_rnd_mtw::intg = selected_int_kind(9) `[private]`

5.30.2.5 integer, parameter messy_main_rnd_mtw::long = selected_int_kind(18) `[private]`

5.30.2.6 integer(kind = wi), parameter messy_main_rnd_mtw::m = 397_wi `[private]`

5.30.2.7 integer(kind = wi), dimension(n), public messy_main_rnd_mtw::mt

5.30.2.8 integer(kind = wi), public messy_main_rnd_mtw::mti = n + 1_wi

5.30.2.9 logical(kind = wi), public messy_main_rnd_mtw::mtinit = .false._wi

5.30.2.10 integer(kind = wi), parameter messy_main_rnd_mtw::n = 624_wi `[private]`

5.30.2.11 integer(kind = wi), parameter messy_main_rnd_mtw::qbs = hbs / 2_wi `[private]`

5.30.2.12   integer(kind = wi), parameter messy_main_rnd_mtw::tbs = 3₋wi ∗ qbs
        `[private]`

5.30.2.13   integer, parameter, public messy_main_rnd_mtw::wi = intg

5.30.2.14   integer, parameter, public messy_main_rnd_mtw::wl = long

5.30.2.15   integer, parameter, public messy_main_rnd_mtw::wr = dobl

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw.-
  f90

5.31   messy₋main₋rnd₋mtw₋ja Module Reference

Data Types

- interface add
- interface add_assign
- interface assign
- interface delete
- interface div
- interface div_by_x
- interface divrem
- type gf2x_obj
- type gf2x_prime_obj
- interface mod_by_x
- interface mult
- interface mult_assign
- interface mult_by_x
- interface new
- interface pow
- interface print_bit
- interface print_hex
- interface rem
- interface set_coef
- interface set_prime
- interface shift
- interface square

Public Member Functions

- subroutine, public mt_jump_ahead (v, w, jp, id, getp, putp)

Public Attributes

- integer([INT32](#)), parameter, public [nn](#) = 624

Private Member Functions

- integer([INT32](#)) function [get_size](#) (deg)
- subroutine [gf2x_new](#) (this, deg)
- subroutine [gf2x_delete](#) (this)
- subroutine [gf2x_print_bit](#) (this)
- subroutine [gf2x_print_hex](#) (this)
- subroutine [gf2x_assign](#) (c, a)
- logical function [is_zero](#) (a)
- integer([INT32](#)) function [get_deg](#) (a)
- subroutine [gf2x_set_coef](#) (a, i)
- subroutine [gf2x_add_assign](#) (c, a)
- subroutine [gf2x_add](#) (c, a, b)
- subroutine [gf2x_pow](#) (c, a, e)
- subroutine [gf2x_square](#) (c, a)
- recursive subroutine [gf2x_mult_kara](#) (c, a, b)
- subroutine [gf2x_mult_assign_kara](#) (a, b)
- subroutine [gf2x_mult_assign_normal](#) (a, b)
- subroutine [gf2x_mult_normal](#) (c, a, b)
- subroutine [gf2x_shift](#) (c, a, i)
- subroutine [gf2x_divrem](#) (q, r, a, b)
- subroutine [gf2x_div](#) (q, a, b)
- subroutine [gf2x_rem](#) (r, a, b)
- subroutine [gf2x_set_prime](#) (mp, m)
- subroutine [gf2x_delete_prime](#) (mp)
- subroutine [gf2x_rem_barrett](#) (r, a, m)
- subroutine [gf2x_mod_by_x](#) (c, a, i)
- subroutine [gf2x_mult_by_x](#) (c, a, i)
- subroutine [gf2x_div_by_x](#) (c, a, i)
- subroutine [gf2x_pow_pow_2](#) (c, e, m)
- subroutine [gf2x_pow_mod](#) (c, a, e, m)
- integer([INT32](#)) function [deg_i32](#) (a)
- integer([INT32](#)) function [deg_i64](#) (a)
- subroutine [square_i32](#) (a, ch, cl)
- subroutine [mult_i32](#) (a, b, ch, cl)
- subroutine [mult_i32_old](#) (a, b, ch, cl)
- subroutine [shift_i32](#) (a, i, ch, cm, cl)
- subroutine [f_get_coeff](#) ([nn](#), [mm](#), [rr](#), [ww](#), [avec](#), nj, id, pp, np)
- subroutine [mt_matvec](#) (v, w)

Private Attributes

- integer, parameter INT32 = selected_int_kind(9)
- integer, parameter INT64 = selected_int_kind(18)
- integer, parameter REAL64 = selected_real_kind(15)
- integer(INT32), parameter mm = 397
- integer(INT32), parameter rr = 31
- integer(INT32), parameter ww = 32
- integer(INT32), parameter avec = Z'9908b0df'
- integer(INT32), parameter MT19937_N = 624
- integer(INT32), parameter MT19937_M = 397
- integer(INT32), parameter MT19937_W = 32
- integer(INT32), parameter MT19937_R = 31
- integer(INT32), parameter MT19937_MATA = Z'9908b0df'
- integer(INT32), parameter MT19937_WMASK = Z'ffffffff'
- integer(INT32), parameter MT19937_UMASK = Z'80000000'
- integer(INT32), parameter MT19937_LMASK = Z'7fffffff'
- integer(INT32), parameter MT19937_SHFT0 = 11
- integer(INT32), parameter MT19937_SHFT1 = 18
- integer(INT32), parameter MT19937_SHFTB = 7
- integer(INT32), parameter MT19937_SHFTC = 15
- integer(INT32), parameter MT19937_MASKB = Z'9d2c5680'
- integer(INT32), parameter MT19937_MASKC = Z'efc60000'
- integer(INT32), parameter MT19937_MAG = (/ 0 , MT19937_MATA /)
- integer(INT32), parameter MAX_KARA = 64

5.31.1 Member Function/Subroutine Documentation

5.31.1.1 integer(INT32) function **messy_main_rnd_mtw_ja::deg_i32 (** integer(INT32) *a* **)** `[private]`

5.31.1.2 integer(INT32) function **messy_main_rnd_mtw_ja::deg_i64 (** integer(INT64) *a* **)** `[private]`

5.31.1.3 subroutine **messy_main_rnd_mtw_ja::f_get_coeff (** integer(INT32), intent(in) *nn,* integer(INT32), intent(in) *mm,* integer(INT32), intent(in) *rr,* integer(INT32), intent(in) *ww,* integer(INT32), intent(in) *avec,* integer(INT32), intent(in) *nj,* integer(INT32), intent(in) *id,* integer(INT32), dimension(0:**nn**-1), intent(inout) *pp,* integer(INT32), intent(inout) *np* **)** `[private]`

5.31.1.4 integer(INT32) function **messy_main_rnd_mtw_ja::get_deg (** type(gf2x_obj), intent(in) *a* **)** `[private]`

5.31.1.5 integer(INT32) function **messy_main_rnd_mtw_ja::get_size (** integer(INT32) *deg* **)** `[private]`

5.31.1.6 subroutine messy_main_rnd_mtw_ja::gf2x_add (type(gf2x_obj), intent(inout) ***c,* type(gf2x_obj), intent(in)** ***a,* type(gf2x_obj), intent(in)** ***b*)** `[private]`

5.31.1.7 subroutine messy_main_rnd_mtw_ja::gf2x_add_assign (type(gf2x_obj), intent(inout) ***c,* type(gf2x_obj), intent(in)** ***a*)** `[private]`

5.31.1.8 subroutine messy_main_rnd_mtw_ja::gf2x_assign (type(gf2x_obj), intent(inout) ***c,* type(gf2x_obj), intent(in)** ***a*)** `[private]`

5.31.1.9 subroutine messy_main_rnd_mtw_ja::gf2x_delete (type(gf2x_obj), intent(inout) ***this*)** `[private]`

5.31.1.10 subroutine messy_main_rnd_mtw_ja::gf2x_delete_prime (type(gf2x_prime_obj), intent(inout) ***mp*)** `[private]`

5.31.1.11 subroutine messy_main_rnd_mtw_ja::gf2x_div (type(gf2x_obj), intent(inout) ***q,* type(gf2x_obj), intent(in)** ***a,* type(gf2x_obj), intent(in)** ***b*)** `[private]`

5.31.1.12 subroutine messy_main_rnd_mtw_ja::gf2x_div_by_x (type(gf2x_obj), intent(inout) ***c,* type(gf2x_obj), intent(in)** ***a,* integer(INT32), intent(in)** ***i*)** `[private]`

5.31.1.13 subroutine messy_main_rnd_mtw_ja::gf2x_divrem (type(gf2x_obj), intent(inout) ***q,* type(gf2x_obj), intent(inout)** ***r,* type(gf2x_obj), intent(in)** ***a,* type(gf2x_obj), intent(in)** ***b*)** `[private]`

5.31.1.14 subroutine messy_main_rnd_mtw_ja::gf2x_mod_by_x (type(gf2x_obj), intent(inout) ***c,* type(gf2x_obj), intent(in)** ***a,* integer(INT32), intent(in)** ***i*)** `[private]`

5.31.1.15 subroutine messy_main_rnd_mtw_ja::gf2x_mult_assign_kara (type(gf2x_obj), intent(inout) ***a,* type(gf2x_obj), intent(in)** ***b*)** `[private]`

5.31.1.16 subroutine messy_main_rnd_mtw_ja::gf2x_mult_assign_normal (type(gf2x_obj), intent(inout) ***a,* type(gf2x_obj), intent(in)** ***b*)** `[private]`

5.31.1.17 subroutine messy_main_rnd_mtw_ja::gf2x_mult_by_x (type(gf2x_obj), intent(inout) ***c,* type(gf2x_obj), intent(in)** ***a,* integer(INT32), intent(in)** ***i*)** `[private]`

5.31.1.18 recursive subroutine messy_main_rnd_mtw_ja::gf2x_mult_kara (type(gf2x_obj), intent(inout) ***c,* type(gf2x_obj), intent(in)** ***a,* type(gf2x_obj), intent(in)** ***b*)** `[private]`

5.31.1.19 subroutine messy_main_rnd_mtw_ja::gf2x_mult_normal (type(gf2x_obj), intent(inout) ***c,* type(gf2x_obj), intent(in)** ***a,* type(gf2x_obj), intent(in)** ***b*)** `[private]`

5.31.1.20 **subroutine messy_main_rnd_mtw_ja::gf2x_new (** type(gf2x_obj),
intent(inout) *this,* integer(INT32), intent(in) *deg* **)** `[private]`

5.31.1.21 **subroutine messy_main_rnd_mtw_ja::gf2x_pow (** type(gf2x_obj),
intent(inout) *c,* type(gf2x_obj), intent(in) *a,* integer(INT32), intent(in) *e* **)**
`[private]`

5.31.1.22 **subroutine messy_main_rnd_mtw_ja::gf2x_pow_mod (** type(gf2x_obj),
intent(inout) *c,* type(gf2x_obj), intent(in) *a,* integer(INT32), intent(in) *e,*
type(gf2x_prime_obj), intent(in) *m* **)** `[private]`

5.31.1.23 **subroutine messy_main_rnd_mtw_ja::gf2x_pow_pow_2 (** type(gf2x_obj),
intent(inout) *c,* integer(INT32), intent(in) *e,* type(gf2x_prime_obj), intent(in) *m* **)**
`[private]`

5.31.1.24 **subroutine messy_main_rnd_mtw_ja::gf2x_print_bit (** type(gf2x_obj),
intent(in) *this* **)** `[private]`

5.31.1.25 **subroutine messy_main_rnd_mtw_ja::gf2x_print_hex (** type(gf2x_obj),
intent(in) *this* **)** `[private]`

5.31.1.26 **subroutine messy_main_rnd_mtw_ja::gf2x_rem (** type(gf2x_obj),
intent(inout) *r,* type(gf2x_obj), intent(in) *a,* type(gf2x_obj), intent(in) *b* **)**
`[private]`

5.31.1.27 **subroutine messy_main_rnd_mtw_ja::gf2x_rem_barrett (** type(gf2x_obj),
intent(inout) *r,* type(gf2x_obj), intent(in) *a,* type(gf2x_prime_obj), intent(in) *m* **)**
`[private]`

5.31.1.28 **subroutine messy_main_rnd_mtw_ja::gf2x_set_coef (** type(gf2x_obj),
intent(inout) *a,* integer(INT32), intent(in) *i* **)** `[private]`

5.31.1.29 **subroutine messy_main_rnd_mtw_ja::gf2x_set_prime (**
type(gf2x_prime_obj), intent(inout) *mp,* type(gf2x_obj), intent(in) *m* **)**
`[private]`

5.31.1.30 **subroutine messy_main_rnd_mtw_ja::gf2x_shift (** type(gf2x_obj),
intent(inout) *c,* type(gf2x_obj), intent(in) *a,* integer(INT32), intent(in) *i* **)**
`[private]`

5.31.1.31 **subroutine messy_main_rnd_mtw_ja::gf2x_square (** type(gf2x_obj),
intent(inout) *c,* type(gf2x_obj), intent(in) *a* **)** `[private]`

5.31.1.32 **logical function messy_main_rnd_mtw_ja::is_zero (** type(gf2x_obj), intent(in)
a **)** `[private]`

5.31.1.33 **subroutine, public messy_main_rnd_mtw_ja::mt_jump_ahead (**
integer(**INT32**), dimension(0:**nn**-1), intent(in) *v,* integer(**INT32**), dimension(0:**nn**-1),
intent(out) *w,* integer(**INT32**), intent(in) *jp,* integer(**INT32**), intent(in) *id,* integer,
dimension(0:**nn**), intent(out), optional *getp,* integer, dimension(0:**nn**), intent(in),
optional *putp* **)**

5.31.1.34 **subroutine messy_main_rnd_mtw_ja::mt_matvec (** integer(**INT32**),
dimension(0:**nn**-1), intent(in) *v,* integer(**INT32**), dimension(0:**nn**-1), intent(out) *w* **)**
[private]

5.31.1.35 **subroutine messy_main_rnd_mtw_ja::mult_i32 (** integer(**INT32**), intent(in)
a, integer(**INT32**), intent(in) *b,* integer(**INT32**), intent(out) *ch,* integer(**INT32**),
intent(out) *cl* **)** [private]

5.31.1.36 **subroutine messy_main_rnd_mtw_ja::mult_i32_old (** integer(**INT32**),
intent(in) *a,* integer(**INT32**), intent(in) *b,* integer(**INT32**), intent(out) *ch,*
integer(**INT32**), intent(out) *cl* **)** [private]

5.31.1.37 **subroutine messy_main_rnd_mtw_ja::shift_i32 (** integer(**INT32**), intent(in) *a,*
integer(**INT32**), intent(in) *i,* integer(**INT32**), intent(out) *ch,* integer(**INT32**), intent(out)
cm, integer(**INT32**), intent(out) *cl* **)** [private]

5.31.1.38 **subroutine messy_main_rnd_mtw_ja::square_i32 (** integer(**INT32**), intent(in)
a, integer(**INT32**), intent(out) *ch,* integer(**INT32**), intent(out) *cl* **)** [private]

5.31.2 Member Data Documentation

5.31.2.1 **integer(INT32), parameter messy_main_rnd_mtw_ja::avec = Z'9908b0df'**
[private]

5.31.2.2 **integer, parameter messy_main_rnd_mtw_ja::INT32 = selected_int_kind(9)**
[private]

5.31.2.3 **integer, parameter messy_main_rnd_mtw_ja::INT64 = selected_int_kind(18)**
[private]

5.31.2.4 **integer(INT32), parameter messy_main_rnd_mtw_ja::MAX_KARA = 64**
[private]

5.31.2.5 **integer(INT32), parameter messy_main_rnd_mtw_ja::mm = 397**
[private]

5.31.2.6 **integer(INT32), parameter messy_main_rnd_mtw_ja::MT19937_LMASK =
Z'7fffffff'** [private]

5.31.2.7 **integer(INT32), parameter messy_main_rnd_mtw_ja::MT19937_M = 397**
[private]

5.31.2.8 integer(INT32), parameter messy_main_rnd_mtw_ja::MT19937_MAG = (/ 0 , MT19937_MATA /) `[private]`

5.31.2.9 integer(INT32), parameter messy_main_rnd_mtw_ja::MT19937_MASKB = Z'9d2c5680' `[private]`

5.31.2.10 integer(INT32), parameter messy_main_rnd_mtw_ja::MT19937_MASKC = Z'efc60000' `[private]`

5.31.2.11 integer(INT32), parameter messy_main_rnd_mtw_ja::MT19937_MATA = Z'9908b0df' `[private]`

5.31.2.12 integer(INT32), parameter messy_main_rnd_mtw_ja::MT19937_N = 624 `[private]`

5.31.2.13 integer(INT32), parameter messy_main_rnd_mtw_ja::MT19937_R = 31 `[private]`

5.31.2.14 integer(INT32), parameter messy_main_rnd_mtw_ja::MT19937_SHFT0 = 11 `[private]`

5.31.2.15 integer(INT32), parameter messy_main_rnd_mtw_ja::MT19937_SHFT1 = 18 `[private]`

5.31.2.16 integer(INT32), parameter messy_main_rnd_mtw_ja::MT19937_SHFTB = 7 `[private]`

5.31.2.17 integer(INT32), parameter messy_main_rnd_mtw_ja::MT19937_SHFTC = 15 `[private]`

5.31.2.18 integer(INT32), parameter messy_main_rnd_mtw_ja::MT19937_UMASK = Z'80000000' `[private]`

5.31.2.19 integer(INT32), parameter messy_main_rnd_mtw_ja::MT19937_W = 32 `[private]`

5.31.2.20 integer(INT32), parameter messy_main_rnd_mtw_ja::MT19937_WMASK = Z'ffffffff' `[private]`

5.31.2.21 integer(INT32), parameter, public messy_main_rnd_mtw_ja::nn = 624

5.31.2.22 integer, parameter messy_main_rnd_mtw_ja::REAL64 = selected_real_kind(15) `[private]`

5.31.2.23 integer(INT32), parameter messy_main_rnd_mtw_ja::rr = 31 `[private]`

5.31.2.24   integer(INT32), parameter messy_main_rnd_mtw_ja::ww = 32 `[private]`

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-
  ja.f90

5.32   messy_main_timer Module Reference

Collaboration diagram for messy_main_timer:
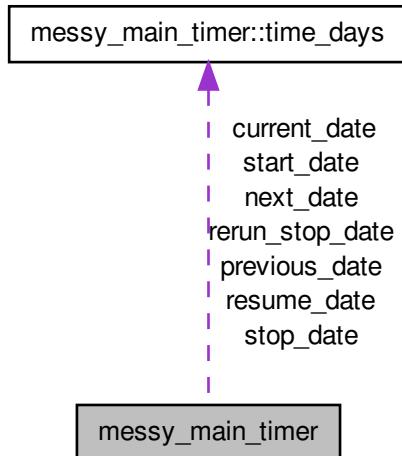
Data Types

- type time_days
- interface timer_get_date
- interface timer_set_date

Public Member Functions

- subroutine, public date_set (day, second, time)
- subroutine, public date_get (time, day, second, ierr)
- subroutine, public add_date (days, seconds, my_day, ierr)
- subroutine, public copy_date (date1, date2, ierr)

- subroutine, public print_date (day, ierr, mess)
- subroutine, public print_date_components (day, ierr, mess)
- subroutine, public if_less (date1, date2, lless, ierr)
- subroutine, public if_equal (date1, date2, leq, ierr)
- subroutine, public is_init (date, linit)
- INTEGER function, public MonthLength (ky, km)
- INTEGER function, public JulianMonthLength (ky, km)
- INTEGER function, public YearLength (yr)
- INTEGER function, public JulianYearLength (yr)
- REAL(dp) function, public YearDay (date)
- REAL(DP) function, public julian_day (DD, MM, YY)
- subroutine, public time_span_s (dts, yy1, mo1, dy1, hr1, mi1, se1, yy2, mo2, dy2, hr2, mi2, se2)
- subroutine, public time_span_d (dtd, yy1, mo1, dy1, hr1, mi1, se1, yy2, mo2, dy2, hr2, mi2, se2)
- REAL(DP) function, public gregor2julian (YY, MM, DD, hr, mi, se)
- subroutine, public julian2gregor (jdate, year, month, day, hrs, mins, secs)
- REAL(dp) function, public utc2lt (status, model_time, degree_lon)
- subroutine timer_set_date_str (status, strflag, yr, mo, dy, hr, mi, se)
- subroutine, public timer_set_calendar (status, strcal)
- subroutine, public timer_get_calendar (status, ical)
- subroutine, public timer_set_delta_time (status, dt)
- subroutine, public timer_get_delta_time (status, dt)
- subroutine, public timer_add_date (status, add_seconds, iyr, imo, idy, ihr, imi, ise, oyr, omo, ody, ohr, omi, ose)
- subroutine, public timer_set_lresume
- subroutine, public timer_get_lresume (lr)
- subroutine, public timer_set_time_step_len (l2tls)
- subroutine, public timer_set_no_cycles (ncyc)
- subroutine, public timer_get_no_cycles (ncyc)
- subroutine, public timer_set_labort (la)
- subroutine, public timer_get_labort (la)
- subroutine, public eval_time_str (status, z_time_string, z_tuf, z_year, z_month, z_day, z_hour, z_min, z_sec)

Public Attributes

- CHARACTER(LEN=∗), parameter, public modstr = 'timer'
- CHARACTER(LEN=∗), parameter, public modver = '0.1'
- INTEGER, parameter, public CAL_JULIAN = 0
- INTEGER, parameter, public CAL_360D = 1
- INTEGER, public CAL_TYPE = 0
- CHARACTER(LEN=8), parameter, public CALENDER = (/ 'standard', '360_day'/)
- CHARACTER(len=3), parameter, public CMONTHS = (/ 'Jan','Feb','Mar','Apr','May','Jun', 'Jul','Aug','Sep','Oct','Nov','Dec' /)

- LOGICAL, public LDEBUG2 = .FALSE.
- LOGICAL, public LDEBUG = .FALSE.
- INTEGER, public INIT_STEP = 0
- REAL(dp), public delta_time = -999._dp
- REAL(dp), public time_step_len = 0._dp
- LOGICAL, public lstart = .TRUE.
- LOGICAL, public lfirst_cycle = .TRUE.
- LOGICAL, public lresume = .FALSE.
- LOGICAL, public lbreak = .FALSE.
- LOGICAL, public lstop = .FALSE.
- LOGICAL, public l_rerun = .FALSE.
- LOGICAL, public L_TRIGGER_RESTART = .FALSE.
- LOGICAL, public lcycbreak = .FALSE.
- LOGICAL, public lforcedtime = .FALSE.
- INTEGER, public NO_CYCLES = 9999
- INTEGER, public NO_DAYS = -9999
- INTEGER, public NO_STEPS = -9999
- LOGICAL, public LABORT = .FALSE.
- INTEGER, public YEAR
- INTEGER, public MONTH
- INTEGER, public DAY
- INTEGER, public HOUR
- INTEGER, public MINUTE
- INTEGER, public SECOND
- INTEGER, public YEAR_START
- INTEGER, public MONTH_START
- INTEGER, public DAY_START
- INTEGER, public HOUR_START
- INTEGER, public MINUTE_START
- INTEGER, public SECOND_START
- INTEGER, public YEAR_NEXT
- INTEGER, public MONTH_NEXT
- INTEGER, public DAY_NEXT
- INTEGER, public HOUR_NEXT
- INTEGER, public MINUTE_NEXT
- INTEGER, public SECOND_NEXT
- INTEGER, public current_time_step
- REAL(dp), public JULIAN_DATE_START
- INTEGER, public DAYOFYEAR
- TYPE(time_days), public start_date
- TYPE(time_days), public stop_date
- TYPE(time_days), public resume_date
- TYPE(time_days), public previous_date
- TYPE(time_days), public current_date
- TYPE(time_days), public next_date
- TYPE(time_days), public rerun_stop_date

Private Member Functions

- subroutine date_set_components (nyr, nmo, ndy, nhr, nmin, nsec, i_time)
- subroutine date_get_components (time, year, month, day, hour, minute, second, ierror)
- subroutine timer_set_date_myd (status, my_date, yr, mo, dy, hr, mi, se)
- subroutine timer_set_date_str_ds (status, strflag, day, second)
- subroutine timer_set_date_myd_ds (status, my_date, day, second)
- subroutine timer_get_date_str (status, strflag, yr, mo, dy, hr, mi, se)
- subroutine timer_get_date_myd (status, my_date, yr, mo, dy, hr, mi, se)

5.32.1 Member Function/Subroutine Documentation

5.32.1.1 subroutine, public messy_main_timer::add_date (INTEGER, intent(in) *days,* INTEGER, intent(in) *seconds,* TYPE (time_days), intent(inout) *my_day,* INTEGER, intent(out), optional *ierr*)

5.32.1.2 subroutine, public messy_main_timer::copy_date (TYPE(time_days), intent(in) *date1,* TYPE(time_days), intent(out) *date2,* INTEGER, intent(out), optional *ierr*)

5.32.1.3 subroutine, public messy_main_timer::date_get (TYPE(time_days), intent(in) *time,* INTEGER, intent(out), optional *day,* INTEGER, intent(out), optional *second,* INTEGER, intent(out), optional *ierr*)

5.32.1.4 subroutine messy_main_timer::date_get_components (TYPE (time_days), intent(in) *time,* INTEGER, intent(out) *year,* INTEGER, intent(out) *month,* INTEGER, intent(out) *day,* INTEGER, intent(out) *hour,* INTEGER, intent(out), optional *minute,* INTEGER, intent(out), optional *second,* INTEGER, intent(out), optional *ierror*) `[private]`

5.32.1.5 subroutine, public messy_main_timer::date_set (INTEGER, intent(in) *day,* INTEGER, intent(in) *second,* TYPE(time_days), intent(out) *time*)

5.32.1.6 subroutine messy_main_timer::date_set_components (INTEGER, intent(in) *nyr,* INTEGER, intent(in) *nmo,* INTEGER, intent(in) *ndy,* INTEGER, intent(in) *nhr,* INTEGER, intent(in) *nmin,* INTEGER, intent(in) *nsec,* TYPE(time_days), intent(out) *i_time*) `[private]`

5.32.1.7 subroutine, public messy_main_timer::eval_time_str (INTEGER, intent(out) *status,* CHARACTER(LEN=∗), intent(inout) *z_time_string,* REAL(DP), intent(out) *z_tuf,* INTEGER, intent(out), optional *z_year,* INTEGER, intent(out), optional *z_month,* INTEGER, intent(out), optional *z_day,* INTEGER, intent(out), optional *z_hour,* INTEGER, intent(out), optional *z_min,* INTEGER, intent(out), optional *z_sec*)

5.32.1.8 REAL(DP) function, public messy_main_timer::gregor2julian (INTEGER, intent(in) *YY,* INTEGER, intent(in) *MM,* INTEGER, intent(in) *DD,* INTEGER, intent(in) *hr,* INTEGER, intent(in) *mi,* INTEGER, intent(in) *se*)

5.32.1.9 **subroutine, public messy_main_timer::if_equal** (TYPE (**time_days**), intent(in) *date1,* TYPE (**time_days**), intent(in) *date2,* LOGICAL, intent(out) *leq,* INTEGER, intent(out), optional *ierr*)

5.32.1.10 **subroutine, public messy_main_timer::if_less** (TYPE (**time_days**), intent(in) *date1,* TYPE (**time_days**), intent(in) *date2,* LOGICAL, intent(out) *lless,* INTEGER, intent(out), optional *ierr*)

5.32.1.11 **subroutine, public messy_main_timer::is_init** (TYPE(**time_days**), intent(in) *date,* LOGICAL, intent(out) *linit*)

5.32.1.12 **subroutine, public messy_main_timer::julian2gregor** (REAL(dp), intent(in) *jdate,* INTEGER, intent(out) *year,* INTEGER, intent(out) *month,* INTEGER, intent(out) *day,* INTEGER, intent(out) *hrs,* INTEGER, intent(out) *mins,* INTEGER, intent(out) *secs*)

5.32.1.13 **REAL(DP) function, public messy_main_timer::julian_day** (REAL(dp), intent(in) *DD,* INTEGER, intent(in) *MM,* INTEGER, intent(in) *YY*)

5.32.1.14 **INTEGER function, public messy_main_timer::JulianMonthLength** (INTEGER, intent(in) *ky,* INTEGER, intent(in) *km*)

5.32.1.15 **INTEGER function, public messy_main_timer::JulianYearLength** (INTEGER, intent(in) *yr*)

5.32.1.16 **INTEGER function, public messy_main_timer::MonthLength** (INTEGER, intent(in) *ky,* INTEGER, intent(in) *km*)

5.32.1.17 **subroutine, public messy_main_timer::print_date** (TYPE (**time_days**), intent(in) *day,* INTEGER, intent(out) *ierr,* CHARACTER(len=∗), intent(out), optional *mess*)

5.32.1.18 **subroutine, public messy_main_timer::print_date_components** (TYPE (**time_days**), intent(in) *day,* INTEGER, intent(out) *ierr,* CHARACTER(len=STRLEN_ULONG), intent(out), optional *mess*)

5.32.1.19 **subroutine, public messy_main_timer::time_span_d** (REAL(dp), intent(out) *dtd,* INTEGER, intent(in) *yy1,* INTEGER, intent(in) *mo1,* INTEGER, intent(in) *dy1,* INTEGER, intent(in) *hr1,* INTEGER, intent(in) *mi1,* INTEGER, intent(in) *se1,* INTEGER, intent(in) *yy2,* INTEGER, intent(in) *mo2,* INTEGER, intent(in) *dy2,* INTEGER, intent(in) *hr2,* INTEGER, intent(in) *mi2,* INTEGER, intent(in) *se2*)

5.32.1.20 **subroutine, public messy_main_timer::time_span_s** (INTEGER, intent(out) *dts,* INTEGER, intent(in) *yy1,* INTEGER, intent(in) *mo1,* INTEGER, intent(in) *dy1,* INTEGER, intent(in) *hr1,* INTEGER, intent(in) *mi1,* INTEGER, intent(in) *se1,* INTEGER, intent(in) *yy2,* INTEGER, intent(in) *mo2,* INTEGER, intent(in) *dy2,* INTEGER, intent(in) *hr2,* INTEGER, intent(in) *mi2,* INTEGER, intent(in) *se2*)

5.32.1.21 **subroutine, public messy_main_timer::timer_add_date (** INTEGER, intent(out)
status, INTEGER, intent(in) *add_seconds,* INTEGER, intent(in) *iyr,* INTEGER,
intent(in) *imo,* INTEGER, intent(in) *idy,* INTEGER, intent(in) *ihr,* INTEGER, intent(in)
imi, INTEGER, intent(in) *ise,* INTEGER, intent(out) *oyr,* INTEGER, intent(out) *omo,*
INTEGER, intent(out) *ody,* INTEGER, intent(out) *ohr,* INTEGER, intent(out) *omi,*
INTEGER, intent(out) *ose* **)**

5.32.1.22 **subroutine, public messy_main_timer::timer_get_calendar (** INTEGER,
intent(out) *status,* INTEGER, intent(out) *ical* **)**

5.32.1.23 **subroutine messy_main_timer::timer_get_date_myd (** INTEGER, intent(out)
status, TYPE(**time_days**), intent(in) *my_date,* INTEGER, intent(out) *yr,* INTEGER,
intent(out) *mo,* INTEGER, intent(out) *dy,* INTEGER, intent(out) *hr,* INTEGER,
intent(out) *mi,* INTEGER, intent(out) *se* **)** `[private]`

5.32.1.24 **subroutine messy_main_timer::timer_get_date_str (** INTEGER, intent(out)
status, CHARACTER(LEN=∗), intent(in) *strflag,* INTEGER, intent(out) *yr,* INTEGER,
intent(out) *mo,* INTEGER, intent(out) *dy,* INTEGER, intent(out) *hr,* INTEGER,
intent(out) *mi,* INTEGER, intent(out) *se* **)** `[private]`

5.32.1.25 **subroutine, public messy_main_timer::timer_get_delta_time (** INTEGER,
intent(out) *status,* REAL(dp), intent(out) *dt* **)**

5.32.1.26 **subroutine, public messy_main_timer::timer_get_labort (** LOGICAL,
intent(out) *la* **)**

5.32.1.27 **subroutine, public messy_main_timer::timer_get_lresume (** LOGICAL,
intent(out) *lr* **)**

5.32.1.28 **subroutine, public messy_main_timer::timer_get_no_cycles (** INTEGER,
intent(out) *ncyc* **)**

5.32.1.29 **subroutine, public messy_main_timer::timer_set_calendar (** INTEGER,
intent(out) *status,* CHARACTER(LEN=∗), intent(in) *strcal* **)**

5.32.1.30 **subroutine messy_main_timer::timer_set_date_myd (** INTEGER, intent(out)
status, TYPE(**time_days**), intent(out) *my_date,* INTEGER, intent(in) *yr,* INTEGER,
intent(in) *mo,* INTEGER, intent(in) *dy,* INTEGER, intent(in) *hr,* INTEGER, intent(in) *mi,*
INTEGER, intent(in) *se* **)** `[private]`

5.32.1.31 **subroutine messy_main_timer::timer_set_date_myd_ds (** INTEGER,
intent(out) *status,* TYPE(**time_days**), intent(out) *my_date,* INTEGER, intent(in) *day,*
INTEGER, intent(in) *second* **)** `[private]`

5.32.1.32 **subroutine messy_main_timer::timer_set_date_str (** INTEGER, intent(out)
status, CHARACTER(LEN=∗), intent(in) *strflag,* INTEGER, intent(in) *yr,* INTEGER,
intent(in) *mo,* INTEGER, intent(in) *dy,* INTEGER, intent(in) *hr,* INTEGER, intent(in) *mi,*
INTEGER, intent(in) *se* **)**

5.32.1.33 subroutine messy_main_timer::timer_set_date_str_ds (INTEGER, intent(out) *status,* **CHARACTER(LEN=∗), intent(in)** *strflag,* **INTEGER, intent(in)** *day,* **INTEGER, intent(in)** *second* **)** `[private]`

5.32.1.34 subroutine, public messy_main_timer::timer_set_delta_time (INTEGER, intent(out) *status,* **REAL(dp), intent(in)** *dt* **)**

5.32.1.35 subroutine, public messy_main_timer::timer_set_labort (LOGICAL, intent(in) *la* **)**

5.32.1.36 subroutine, public messy_main_timer::timer_set_lresume ( )

5.32.1.37 subroutine, public messy_main_timer::timer_set_no_cycles (INTEGER, intent(in) *ncyc* **)**

5.32.1.38 subroutine, public messy_main_timer::timer_set_time_step_len (LOGICAL, intent(in) *l2tls* **)**

5.32.1.39 REAL(dp) function, public messy_main_timer::utc2lt (INTEGER, intent(out) *status,* **REAL(dp), intent(in)** *model_time,* **REAL(dp), intent(in)** *degree_lon* **)**

5.32.1.40 REAL(dp) function, public messy_main_timer::YearDay (TYPE(time_days) *date* **)**

5.32.1.41 INTEGER function, public messy_main_timer::YearLength (INTEGER, intent(in), optional *yr* **)**

5.32.2 Member Data Documentation

5.32.2.1 INTEGER, parameter, public messy_main_timer::CAL_360D = 1

5.32.2.2 INTEGER, parameter, public messy_main_timer::CAL_JULIAN = 0

5.32.2.3 INTEGER, public messy_main_timer::CAL_TYPE = 0

5.32.2.4 CHARACTER(LEN=8), parameter, public messy_main_timer::CALENDER = (/ **'standard', '360_day '/)**

5.32.2.5 CHARACTER(len=3), parameter, public messy_main_timer::CMONTHS = (/ **'Jan','Feb','Mar','Apr','May','Jun', 'Jul','Aug','Sep','Oct','Nov','Dec' /)**

5.32.2.6 TYPE(time_days), public messy_main_timer::current_date

5.32.2.7 INTEGER, public messy_main_timer::current_time_step

5.32.2.8 INTEGER, public messy_main_timer::DAY

5.32.2.9   INTEGER, public messy_main_timer::DAY_NEXT

5.32.2.10   INTEGER, public messy_main_timer::DAY_START

5.32.2.11   INTEGER, public messy_main_timer::DAYOFYEAR

5.32.2.12   REAL(dp), public messy_main_timer::delta_time = -999._dp

5.32.2.13   INTEGER, public messy_main_timer::HOUR

5.32.2.14   INTEGER, public messy_main_timer::HOUR_NEXT

5.32.2.15   INTEGER, public messy_main_timer::HOUR_START

5.32.2.16   INTEGER, public messy_main_timer::INIT_STEP = 0

5.32.2.17   REAL(dp), public messy_main_timer::JULIAN_DATE_START

5.32.2.18   LOGICAL, public messy_main_timer::l_rerun = .FALSE.

5.32.2.19   LOGICAL, public messy_main_timer::L_TRIGGER_RESTART = .FALSE.

5.32.2.20   LOGICAL, public messy_main_timer::LABORT = .FALSE.

5.32.2.21   LOGICAL, public messy_main_timer::lbreak = .FALSE.

5.32.2.22   LOGICAL, public messy_main_timer::lcycbreak = .FALSE.

5.32.2.23   LOGICAL, public messy_main_timer::LDEBUG = .FALSE.

5.32.2.24   LOGICAL, public messy_main_timer::LDEBUG2 = .FALSE.

5.32.2.25   LOGICAL, public messy_main_timer::lfirst_cycle = .TRUE.

5.32.2.26   LOGICAL, public messy_main_timer::lforcedtime = .FALSE.

5.32.2.27   LOGICAL, public messy_main_timer::lresume = .FALSE.

5.32.2.28   LOGICAL, public messy_main_timer::lstart = .TRUE.

5.32.2.29   LOGICAL, public messy_main_timer::lstop = .FALSE.

5.32.2.30   INTEGER, public messy_main_timer::MINUTE

5.32.2.31   INTEGER, public messy_main_timer::MINUTE_NEXT

5.32.2.32   INTEGER, public messy_main_timer::MINUTE_START

5.32.2.33 CHARACTER(LEN=∗), parameter, public messy_main_timer::modstr = 'timer'

5.32.2.34 CHARACTER(LEN=∗), parameter, public messy_main_timer::modver = '0.1'

5.32.2.35 INTEGER, public messy_main_timer::MONTH

5.32.2.36 INTEGER, public messy_main_timer::MONTH_NEXT

5.32.2.37 INTEGER, public messy_main_timer::MONTH_START

5.32.2.38 TYPE(time_days), public messy_main_timer::next_date

5.32.2.39 INTEGER, public messy_main_timer::NO_CYCLES = 9999

5.32.2.40 INTEGER, public messy_main_timer::NO_DAYS = -9999

5.32.2.41 INTEGER, public messy_main_timer::NO_STEPS = -9999

5.32.2.42 TYPE(time_days), public messy_main_timer::previous_date

5.32.2.43 TYPE(time_days), public messy_main_timer::rerun_stop_date

5.32.2.44 TYPE(time_days), public messy_main_timer::resume_date

5.32.2.45 INTEGER, public messy_main_timer::SECOND

5.32.2.46 INTEGER, public messy_main_timer::SECOND_NEXT

5.32.2.47 INTEGER, public messy_main_timer::SECOND_START

5.32.2.48 TYPE(time_days), public messy_main_timer::start_date

5.32.2.49 TYPE(time_days), public messy_main_timer::stop_date

5.32.2.50 REAL(dp), public messy_main_timer::time_step_len = 0._dp

5.32.2.51 INTEGER, public messy_main_timer::YEAR

5.32.2.52 INTEGER, public messy_main_timer::YEAR_NEXT

5.32.2.53 INTEGER, public messy_main_timer::YEAR_START

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_timer.f90

5.33 messy_main_tools Module Reference

Data Types

- interface ind2val
- interface iso2ind
- type PTR_0D_ARRAY
- type PTR_1D_ARRAY
- type PTR_1D_ARRAY_INT
- type PTR_2D_ARRAY
- type PTR_3D_ARRAY
- type PTR_4D_ARRAY
- type PTR_5D_ARRAY
- interface remap_bounds
- interface str
- interface str2num
- type t_reset_par

Public Member Functions

- subroutine, public read_nml_open (lex, substr, iou, nmlstr, modstr)
- subroutine, public read_nml_check (fstat, substr, iou, nmlstr, modstr)
- subroutine, public read_nml_close (substr, iou, modstr)
- subroutine iso2ind_1d (field, iso, k, f, lrev)
- subroutine, public int2str (str, ii, cpad, cerr)
- subroutine, public strcrack (str, ch, el, n)
- subroutine, public ns_index (list, value, idx, idx2, l_periodic)
- subroutine, public nn_index (list, value, idx, idx2, fac, status)
- subroutine, public nl_index (list, value, idx, status)
- REAL(DP) function, dimension(:), allocatable, public fliparray (list)
- subroutine, public init_convect_tables
- LOGICAL function, public match_wild (pattern, string)
- subroutine, public str2chob (status, str, n, c, o)
- subroutine, public bilin_weight (vn, v, w)
- REAL(dp) function, public psat_mk (p_temp, p_l_liquid)
- subroutine, public ucase (string)
- REAL(dp) function, public spec2relhumwmo (status, z_spechum, z_temp, z_-press, z_l_psat_emac)
- REAL(dp) function, public spec2relhum (status, z_spechum, z_temp, z_press, z_l_psat_emac)
- subroutine, public spec2relhum_q (status, relhum, spechum, temp, press, liq_-only)
- REAL(dp) function, public rel2spechumwmo (status, z_relhum, z_temp, z_press, z_l_psat_emac)
- REAL(dp) function, public rel2spechum (status, z_relhum, z_temp, z_press, z_l-_psat_emac)

- REAL(dp) function, public rh2mr (status, p_relhum, p_temp, p_press, p_l_psat_-emac, p_l_relhum_wmo)
- REAL(dp) function, public relhum2mr (status, z_relhum, z_temp, z_press, z_l_-psat_emac)
- REAL(dp) function, public relhumwmo2mr (status, z_relhum, z_temp, z_press, z_l_psat_emac)
- REAL(dp) function, public cair_trad (status, z_relhum, z_temp, z_press, z_l_psat-_emac)
- REAL(dp) function, public cair_wmo (status, z_relhum, z_temp, z_press, z_l_-psat_emac)
- REAL(dp) function, dimension(:), pointer remap_bounds1 (lb1, array)
- subroutine, public full2half (full, half, press, pressi)
- subroutine, public CalcTimeAngles (utsec, sda, ssa, rlt, csza, sza, daylen_sec, rlat, phi)
- subroutine, public Spline1D (X, Y, N, YP1, YPN, Y2, natspline)
- subroutine, public Splint1D (XA, YA, Y2A, N, X, Y, status)
- INTEGER function, public find_next_free_unit (istart, istop)
- ELEMENTAL REAL(dp) function, public mass_density (press, temp, sphum)
- ELEMENTAL REAL(dp) function, public layerthickness (geopot_u, geopot_l)
- subroutine str2num_real_dp (str, out, err)
- subroutine, public ERRFUNC (X, ERESULT, JINT)
- subroutine, public calc_hybrid_coeff (ke, vcoord, vcflat, irefatm, ivctype, hyam, hyai, hybm, hybi)
- subroutine, public interpol_stag2mid (stag_field, mid_field, ie, je, ke, intdim)
- subroutine, public interpol_mid2stag (mid_field, stag_field, ie, je, ke, intdim)

Public Attributes

- INTEGER, parameter, public jptlucu1 = 50000
- INTEGER, parameter, public jptlucu2 = 400000
- REAL(dp), dimension(jptlucu1:jptlucu2), target, save, public tlucua
- REAL(dp), dimension(jptlucu1:jptlucu2), target, save, public tlucub
- REAL(dp), dimension(jptlucu1:jptlucu2), target, save, public tlucuc
- REAL(dp), dimension(jptlucu1:jptlucu2), target, save, public tlucuaw

Private Member Functions

- subroutine iso2ind_2d (kproma, field, iso, k, f, lrev)
- subroutine ind2val_1d (val, field, k, f)
- subroutine ind2val_2d (kproma, val, field, k, f)
- CHARACTER(LEN=5) function str_logical (zlogical, fmt)
- CHARACTER(LEN=STRLEN_LONG) function str_integer (zinteger, fmt)
- CHARACTER(LEN=STRLEN_LONG) function str_real_sp (zreal_sp, fmt)
- CHARACTER(LEN=STRLEN_LONG) function str_real_dp (zreal_dp, fmt)
- REAL(dp) function, dimension(:,:), pointer remap_bounds2 (lb1, lb2, array)
- REAL(dp) function, dimension(:,:,:), pointer remap_bounds3 (lb1, lb2, lb3, array)

- REAL(dp) function, dimension(:,:,:,:), pointer remap_bounds4 (lb1, lb2, lb3, lb4, array)

- subroutine str2num_real_sp (str, out, err)

- subroutine str2num_integer (str, out, err)

5.33.1 Member Function/Subroutine Documentation

5.33.1.1 subroutine, public messy_main_tools::bilin_weight (REAL(dp), dimension(4, 2), intent(in) *vn*, REAL(dp), dimension(2), intent(in) *v*, REAL(dp), dimension(4), intent(out) *w*)

5.33.1.2 REAL(dp) function, public messy_main_tools::cair_trad (INTEGER, intent(out) *status*, REAL(dp), intent(in) *z_relhum*, REAL(dp), intent(in) *z_temp*, REAL(dp), intent(in) *z_press*, LOGICAL, intent(in), optional *z_l_psat_emac*)

5.33.1.3 REAL(dp) function, public messy_main_tools::cair_wmo (INTEGER, intent(out) *status*, REAL(dp), intent(in) *z_relhum*, REAL(dp), intent(in) *z_temp*, REAL(dp), intent(in) *z_press*, LOGICAL, intent(in), optional *z_l_psat_emac*)

5.33.1.4 subroutine, public messy_main_tools::calc_hybrid_coeff (INTEGER, intent(in) *ke*, REAL(dp), dimension(ke+1), intent(in) *vcoord*, REAL(dp), intent(in) *vcflat*, INTEGER, intent(in) *irefatm*, INTEGER, intent(in) *ivctype*, REAL(dp), dimension(ke), intent(out), optional *hyam*, REAL(dp), dimension(ke+1), intent(out), optional *hyai*, REAL(dp), dimension(ke), intent(out), optional *hybm*, REAL(dp), dimension(ke+1), intent(out), optional *hybi*)

5.33.1.5 subroutine, public messy_main_tools::CalcTimeAngles (REAL(dp), intent(in) *utsec*, REAL(dp), intent(in) *sda*, REAL(dp), dimension(:), intent(out) *ssa*, REAL(dp), dimension(:), intent(out) *rlt*, REAL(dp), dimension(:,:), intent(out) *csza*, REAL(dp), dimension(:,:), intent(out) *sza*, REAL(dp), intent(in) *daylen_sec*, REAL(dp), dimension(:), intent(in) *rlat*, REAL(dp), dimension(:), intent(in) *phi*)

5.33.1.6 subroutine, public messy_main_tools::ERRFUNC (REAL *X*, REAL *ERESULT*, INTEGER *JINT*)

5.33.1.7 INTEGER function, public messy_main_tools::find_next_free_unit (INTEGER *istart*, INTEGER *istop*)

5.33.1.8 REAL(DP) function, dimension(:), allocatable, public messy_main_tools::fliparray (REAL(DP), dimension(:), intent(in) *list*)

5.33.1.9 subroutine, public messy_main_tools::full2half (REAL(dp), dimension(:,:), intent(in) *full*, REAL(dp), dimension(:,:), intent(out) *half*, REAL(dp), dimension(:,:), intent(in) *press*, REAL(dp), dimension(:,:), intent(in) *pressi*)

5.33.1.10 subroutine messy_main_tools::ind2val_1d (REAL(DP), intent(out) *val,*
REAL(DP), dimension(:), intent(in) *field,* INTEGER, intent(in) *k,* REAL(DP), intent(in),
optional *f*) `[private]`

5.33.1.11 subroutine messy_main_tools::ind2val_2d (INTEGER, intent(in) *kproma,*
REAL(DP), dimension(:), intent(out) *val,* REAL(DP), dimension(:,:), intent(in) *field,*
INTEGER, dimension(:), intent(in) *k,* REAL(DP), dimension(:), intent(in), optional *f*)
`[private]`

5.33.1.12 subroutine, public messy_main_tools::init_convect_tables ( )

5.33.1.13 subroutine, public messy_main_tools::int2str (CHARACTER(LEN=∗), intent(out)
str, INTEGER, intent(in) *ii,* CHARACTER, intent(in), optional *cpad,* CHARACTER,
intent(in), optional *cerr*)

5.33.1.14 subroutine, public messy_main_tools::interpol_mid2stag (REAL(DP),
dimension(:,:,:), intent(in) *mid_field,* REAL(DP), dimension(:,:,:), intent(out) *stag_field,*
INTEGER, intent(in) *ie,* INTEGER, intent(in) *je,* INTEGER, intent(in) *ke,* INTEGER,
intent(in) *intdim*)

5.33.1.15 subroutine, public messy_main_tools::interpol_stag2mid (REAL(DP),
dimension(:,:,:), intent(in) *stag_field,* REAL(DP), dimension(:,:,:), intent(out) *mid_field,*
INTEGER, intent(in) *ie,* INTEGER, intent(in) *je,* INTEGER, intent(in) *ke,* INTEGER,
intent(in) *intdim*)

5.33.1.16 subroutine messy_main_tools::iso2ind_1d (REAL(DP), dimension(:), intent(in)
field, REAL(DP), intent(in) *iso,* INTEGER, intent(out) *k,* REAL(DP), intent(out), optional
f, LOGICAL, intent(in), optional *lrev*)

5.33.1.17 subroutine messy_main_tools::iso2ind_2d (INTEGER, intent(in) *kproma,*
REAL(DP), dimension(:,:), intent(in) *field,* REAL(DP), dimension(:), intent(in) *iso,*
INTEGER, dimension(:), intent(out) *k,* REAL(DP), dimension(:), intent(out), optional *f,*
LOGICAL, intent(in), optional *lrev*) `[private]`

5.33.1.18 ELEMENTAL REAL(dp) function, public messy_main_tools::layerthickness (
REAL(dp), intent(in) *geopot_u,* REAL(dp), intent(in) *geopot_l*)

5.33.1.19 ELEMENTAL REAL(dp) function, public messy_main_tools::mass_density (
REAL(dp), intent(in) *press,* REAL(dp), intent(in) *temp,* REAL(dp), intent(in) *sphum*)

5.33.1.20 LOGICAL function, public messy_main_tools::match_wild (
CHARACTER(LEN=∗), intent(in) *pattern,* CHARACTER(LEN=∗), intent(in) *string*)

5.33.1.21 subroutine, public messy_main_tools::nl_index (REAL(DP), dimension(:),
intent(in) *list,* REAL(DP), intent(in) *value,* INTEGER, intent(out) *idx,* INTEGER,
intent(out), optional *status*)

5.33.1.22 **subroutine, public messy_main_tools::nn_index** (REAL(DP), dimension(:), intent(in) *list,* REAL(DP), intent(in) *value,* INTEGER, intent(out) *idx,* INTEGER, intent(out), optional *idx2,* REAL(DP), intent(in), optional *fac,* INTEGER, intent(out), optional *status*)

5.33.1.23 **subroutine, public messy_main_tools::ns_index** (REAL(DP), dimension(:), intent(in) *list,* REAL(DP), intent(in) *value,* INTEGER, intent(out) *idx,* INTEGER, intent(out), optional *idx2,* LOGICAL, intent(in), optional *l_periodic*)

5.33.1.24 **REAL(dp) function, public messy_main_tools::psat_mk** (REAL(dp), intent(in) *p_temp,* LOGICAL, intent(in), optional *p_l_liquid*)

5.33.1.25 **subroutine, public messy_main_tools::read_nml_check** (INTEGER, intent(in) *fstat,* CHARACTER(LEN=∗), intent(in) *substr,* INTEGER, intent(in) *iou,* CHARACTER(LEN=∗), intent(in) *nmlstr,* CHARACTER(LEN=∗), intent(in) *modstr*)

5.33.1.26 **subroutine, public messy_main_tools::read_nml_close** (CHARACTER(LEN=∗), intent(in) *substr,* INTEGER, intent(in) *iou,* CHARACTER(LEN=∗), intent(in) *modstr*)

5.33.1.27 **subroutine, public messy_main_tools::read_nml_open** (LOGICAL, intent(out) *lex,* CHARACTER(LEN=∗), intent(in) *substr,* INTEGER, intent(in) *iou,* CHARACTER(LEN=∗), intent(in) *nmlstr,* CHARACTER(LEN=∗), intent(in) *modstr*)

5.33.1.28 **REAL(dp) function, public messy_main_tools::rel2spechum** (INTEGER, intent(out) *status,* REAL(dp), intent(in) *z_relhum,* REAL(dp), intent(in) *z_temp,* REAL(dp), intent(in) *z_press,* LOGICAL, intent(in), optional *z_l_psat_emac*)

5.33.1.29 **REAL(dp) function, public messy_main_tools::rel2spechumwmo** (INTEGER, intent(out) *status,* REAL(dp), intent(in) *z_relhum,* REAL(dp), intent(in) *z_temp,* REAL(dp), intent(in) *z_press,* LOGICAL, intent(in), optional *z_l_psat_emac*)

5.33.1.30 **REAL(dp) function, public messy_main_tools::relhum2mr** (INTEGER, intent(out) *status,* REAL(dp), intent(in) *z_relhum,* REAL(dp), intent(in) *z_temp,* REAL(dp), intent(in) *z_press,* LOGICAL, intent(in) *z_l_psat_emac*)

5.33.1.31 **REAL(dp) function, public messy_main_tools::relhumwmo2mr** (INTEGER, intent(out) *status,* REAL(dp), intent(in) *z_relhum,* REAL(dp), intent(in) *z_temp,* REAL(dp), intent(in) *z_press,* LOGICAL, intent(in) *z_l_psat_emac*)

5.33.1.32 **REAL(dp) function, dimension(:), pointer messy_main_tools::remap_bounds1** (INTEGER, intent(in) *lb1,* REAL(dp), dimension(lb1:), intent(in), target *array*)

5.33.1.33 **REAL(dp) function, dimension(:,:), pointer messy_main_tools::remap_bounds2** (INTEGER, intent(in) *lb1,* INTEGER, intent(in) *lb2,* REAL(dp), dimension(lb1:,lb2:), intent(in), target *array*) `[private]`

5.33.1.34 **REAL(dp) function, dimension(:,:,:,:), pointer messy_main_tools::remap_-bounds3** (INTEGER, intent(in) *lb1,* INTEGER, intent(in) *lb2,* INTEGER, intent(in) *lb3,* REAL(dp), dimension(lb1:,lb2:,lb3:), intent(in), target *array*) `[private]`

5.33.1.35 **REAL(dp) function, dimension(:,:,:,:), pointer messy_main_tools::remap_-bounds4** (INTEGER, intent(in) *lb1,* INTEGER, intent(in) *lb2,* INTEGER, intent(in) *lb3,* INTEGER, intent(in) *lb4,* REAL(dp), dimension(lb1:,lb2:,lb3:,lb4:), intent(in), target *array*) `[private]`

5.33.1.36 **REAL(dp) function, public messy_main_tools::rh2mr** (INTEGER, intent(out) *status,* REAL(dp), intent(in) *p_relhum,* REAL(dp), intent(in) *p_temp,* REAL(dp), intent(in) *p_press,* LOGICAL, intent(in), optional *p_l_psat_emac,* LOGICAL, intent(in), optional *p_l_relhum_wmo*)

5.33.1.37 **REAL(dp) function, public messy_main_tools::spec2relhum** (INTEGER, intent(out) *status,* REAL(dp), intent(in) *z_spechum,* REAL(dp), intent(in) *z_temp,* REAL(dp), intent(in) *z_press,* LOGICAL, intent(in), optional *z_l_psat_emac*)

5.33.1.38 **subroutine, public messy_main_tools::spec2relhum_q** (INTEGER, intent(out) *status,* REAL(dp), intent(out) *relhum,* REAL(dp), intent(in) *spechum,* REAL(dp), intent(in) *temp,* REAL(dp), intent(in) *press,* LOGICAL, intent(in), optional *liq_only*)

5.33.1.39 **REAL(dp) function, public messy_main_tools::spec2relhumwmo** (INTEGER, intent(out) *status,* REAL(dp), intent(in) *z_spechum,* REAL(dp), intent(in) *z_temp,* REAL(dp), intent(in) *z_press,* LOGICAL, intent(in), optional *z_l_psat_emac*)

5.33.1.40 **subroutine, public messy_main_tools::Spline1D** (REAL(dp), dimension(:), intent(in) *X,* REAL(dp), dimension(:), intent(in) *Y,* INTEGER, intent(in) *N,* REAL(dp), intent(in) *YP1,* REAL(dp), intent(in) *YPN,* REAL(dp), dimension(:), intent(out) *Y2,* LOGICAL, intent(in), optional *natspline*)

5.33.1.41 **subroutine, public messy_main_tools::Splint1D** (REAL(dp), dimension(:), intent(in) *XA,* REAL(dp), dimension(:), intent(in) *YA,* REAL(dp), dimension(:), intent(in) *Y2A,* INTEGER, intent(in) *N,* REAL(dp), intent(in) *X,* REAL(dp), intent(out) *Y,* INTEGER, intent(out) *status*)

5.33.1.42 **subroutine, public messy_main_tools::str2chob** (INTEGER, intent(out) *status,* CHARACTER(LEN=∗), intent(in) *str,* INTEGER, intent(out) *n,* CHARACTER(LEN=∗), dimension(:), pointer *c,* CHARACTER(LEN=∗), dimension(:), pointer *o*)

5.33.1.43 **subroutine messy_main_tools::str2num_integer** (CHARACTER(LEN=∗), intent(in) *str,* INTEGER, intent(out) *out,* INTEGER, intent(out), optional *err*) `[private]`

5.33.1.44 **subroutine messy_main_tools::str2num_real_dp** (CHARACTER(LEN=∗), intent(in) *str,* REAL(dp), intent(out) *out,* INTEGER, intent(out), optional *err*)

5.33.1.45 **subroutine messy_main_tools::str2num_real_sp (CHARACTER(LEN=∗),**
intent(in) *str,* **REAL(sp), intent(out)** *out,* **INTEGER, intent(out), optional** *err* **)**
`[private]`

5.33.1.46 **CHARACTER(LEN=STRLEN_LONG) function messy_main_tools::str_integer (**
INTEGER, intent(in) *zinteger,* **CHARACTER(LEN=∗), intent(in), optional** *fmt* **)**
`[private]`

5.33.1.47 **CHARACTER(LEN=5) function messy_main_tools::str_logical (LOGICAL,**
intent(in) *zlogical,* **CHARACTER(LEN=∗), intent(in), optional** *fmt* **)** `[private]`

5.33.1.48 **CHARACTER(LEN=STRLEN_LONG) function messy_main_tools::str_real_dp (**
REAL(dp), intent(in) *zreal_dp,* **CHARACTER(LEN=∗), intent(in), optional** *fmt* **)**
`[private]`

5.33.1.49 **CHARACTER(LEN=STRLEN_LONG) function messy_main_tools::str_real_sp (**
REAL(sp), intent(in) *zreal_sp,* **CHARACTER(LEN=∗), intent(in), optional** *fmt* **)**
`[private]`

5.33.1.50 **subroutine, public messy_main_tools::strcrack (CHARACTER(LEN=∗),**
intent(in) *str,* **CHARACTER, intent(in)** *ch,* **CHARACTER(LEN=∗), dimension(:), pointer**
el, **INTEGER, intent(out)** *n* **)**

5.33.1.51 **subroutine, public messy_main_tools::ucase (CHARACTER(LEN=∗),**
intent(inout) *string* **)**

5.33.2 Member Data Documentation

5.33.2.1 **INTEGER, parameter, public messy_main_tools::jptlucu1 = 50000**

5.33.2.2 **INTEGER, parameter, public messy_main_tools::jptlucu2 = 400000**

5.33.2.3 **REAL(dp), dimension(jptlucu1:jptlucu2), target, save, public**
messy_main_tools::tlucua

5.33.2.4 **REAL(dp), dimension(jptlucu1:jptlucu2), target, save, public**
messy_main_tools::tlucuaw

5.33.2.5 **REAL(dp), dimension(jptlucu1:jptlucu2), target, save, public**
messy_main_tools::tlucub

5.33.2.6 **REAL(dp), dimension(jptlucu1:jptlucu2), target, save, public**
messy_main_tools::tlucuc

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_tools.f90

5.34 messy_main_tools_kp4_compress Module Reference

Data Types

- interface kco_compress
- interface kco_finalize
- interface kco_initialize

Public Member Functions

- subroutine, public kco_initialize (npoints_initial, f, IERR, Kacc, Krej)
- subroutine, public kco_compress (n_points, T, H, Hnew, IERR, f, RCONST, FIX, RejectLastH, RejectMoreH, Kacc, Krej)
- subroutine, public kco_finalize (f, IERR, Kacc, Krej)

Public Attributes

- integer, dimension(:), allocatable, public index_org
- logical, dimension(:), allocatable, public cell_done

Private Attributes

- INTEGER, parameter dp = SELECTED_REAL_KIND(12, 307)
- integer kpoints
- integer kpoints_save
- integer, dimension(:), allocatable index_step
- logical, dimension(:), allocatable done_check
- real(kind=dp), dimension(:,:), allocatable f_done
- integer, dimension(:), allocatable Kacc_done
- integer, dimension(:), allocatable Krej_done
- integer, dimension(:), allocatable ierr_done

5.34.1 Member Function/Subroutine Documentation

5.34.1.1 subroutine, public **messy_main_tools_kp4_compress::kco_compress** (integer, intent(inout) *n_points,* real(kind=**dp**), dimension(:), intent(inout) *T,* real(kind=**dp**), dimension(:), intent(inout) *H,* real(kind=**dp**), dimension(:), intent(inout) *Hnew,* INTEGER, dimension(:), intent(inout) *IERR,* real(kind=**dp**), dimension(:,:), intent(inout) *f,* real(kind=**dp**), dimension(:,:), intent(inout) *RCONST,* real(kind=**dp**), dimension(:,:), intent(inout) *FIX,* LOGICAL, dimension(:), intent(inout) *RejectLastH,* LOGICAL, dimension(:), intent(inout) *RejectMoreH,* integer, dimension(:), intent(inout) *Kacc,* integer, dimension(:), intent(inout) *Krej*)

5.34.1.2 **subroutine, public messy_main_tools_kp4_compress::kco_finalize (** real(kind=**dp**), dimension(:,:), intent(inout) *f,* integer, dimension(:), intent(inout) *IERR,* integer, dimension(:), intent(inout) *Kacc,* integer, dimension(:), intent(inout) *Krej* **)**

5.34.1.3 **subroutine, public messy_main_tools_kp4_compress::kco_initialize (** integer, intent(in) *npoints_initial,* real(kind=**dp**), dimension(:,:), intent(in) *f,* integer, dimension(:), intent(in) *IERR,* integer, dimension(:), intent(in) *Kacc,* integer, dimension(:), intent(in) *Krej* **)**

5.34.2 Member Data Documentation

5.34.2.1 **logical, dimension(:), allocatable, public messy_main_tools_kp4_compress-**
::cell_done

5.34.2.2 **logical, dimension(:), allocatable messy_main_tools_kp4_compress::done_-**
check [private]

5.34.2.3 **INTEGER, parameter messy_main_tools_kp4_compress::dp =**
SELECTED_REAL_KIND(12, 307) [private]

5.34.2.4 **real(kind=dp), dimension(:,:), allocatable messy_main_tools_kp4_compress::f-**
_done [private]

5.34.2.5 **integer, dimension(:), allocatable messy_main_tools_kp4_compress::ierr_-**
done [private]

5.34.2.6 **integer, dimension(:), allocatable, public messy_main_tools_kp4_compress-**
::index_org

5.34.2.7 **integer, dimension(:), allocatable messy_main_tools_kp4_compress::index_-**
step [private]

5.34.2.8 **integer, dimension(:), allocatable messy_main_tools_kp4_compress::Kacc_-**
done [private]

5.34.2.9 **integer messy_main_tools_kp4_compress::kpoints** [private]

5.34.2.10 **integer messy_main_tools_kp4_compress::kpoints_save** [private]

5.34.2.11 **integer, dimension(:), allocatable messy_main_tools_kp4_compress::Krej_-**
done [private]

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_tools_kp4-
  _compress.f90

5.35 messy␣mecca Module Reference

Public Member Functions

- subroutine, public mecca_read_nml_ctrl (status, iou)
- subroutine, public initialize_kpp_variables
- LOGICAL function, public steady_state_reached (c, timesteplen)
- subroutine, public define_mcexp (status, mcexp)

Public Attributes

- CHARACTER(LEN=∗), parameter, public modstr = 'mecca'
- CHARACTER(LEN=∗), parameter, public modver = '3.7g'
- LOGICAL, save, public l_aero
- CHARACTER(LEN=STRLEN_SHORT), save, public mecca_aero = 'AUTO'
- LOGICAL, save, public l_force_khet = .FALSE.
- LOGICAL, save, public l_kpp_debug = .FALSE.
- LOGICAL, save, public l_tag = .FALSE.
- LOGICAL, save, public l_dbl = .FALSE.
- INTEGER, save, public mcexp_seed = 0

5.35.1 Member Function/Subroutine Documentation

5.35.1.1 subroutine, public messy_mecca::define_mcexp (INTEGER, intent(out) *status,* REAL(DP), dimension(:), intent(out) *mcexp*)

5.35.1.2 subroutine, public messy_mecca::initialize_kpp_variables ( )

5.35.1.3 subroutine, public messy_mecca::mecca_read_nml_ctrl (INTEGER, intent(out) *status,* INTEGER, intent(in) *iou*)

5.35.1.4 LOGICAL function, public messy_mecca::steady_state_reached (REAL(DP), dimension(:), intent(in) *c,* REAL(DP), intent(in) *timesteplen*)

5.35.2 Member Data Documentation

5.35.2.1 LOGICAL, save, public messy_mecca::l_aero

5.35.2.2 LOGICAL, save, public messy_mecca::l_dbl = .FALSE.

5.35.2.3 LOGICAL, save, public messy_mecca::l_force_khet = .FALSE.

5.35.2.4 LOGICAL, save, public messy_mecca::l_kpp_debug = .FALSE.

5.35.2.5 LOGICAL, save, public messy_mecca::l_tag = .FALSE.

5.35.2.6   INTEGER, save, public messy_mecca::mcexp_seed = 0

5.35.2.7   CHARACTER(LEN=STRLEN_SHORT), save, public messy_mecca::mecca_aero = 'AUTO'

5.35.2.8   CHARACTER(LEN=∗), parameter, public messy_mecca::modstr = 'mecca'

5.35.2.9   CHARACTER(LEN=∗), parameter, public messy_mecca::modver = '3.7g'

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_mecca.f90

5.36   messy_mecca_aero Module Reference

Public Member Functions

- subroutine, public mecca_aero_init_gasaq (l_print)
- subroutine, public mecca_aero_calc_k_ex (radius, temp, press, loghet, xaer, lwc, C, k_exf, k_exb, k_exf_N2O5, k_exf_ClNO3, k_exf_BrNO3)
- subroutine, public mecca_aero_calc_k_ex_ocean (xaer, radius, temp, zmix, k_-exf, k_exb)
- subroutine, public mecca_aero_diag (zmr_Brsalt, zmr_Brorg, zmr_BrSScap, zmrac_Brsalt, zmrac_Brorg, zmrac_BrSScap)

Public Attributes

- CHARACTER(len=∗), parameter, public submodstr = 'mecca_aero'

Private Attributes

- REAL(DP) alpha_T0
- REAL(DP) alpha_Tdep
- REAL(DP) Henry_T0
- REAL(DP) Henry_Tdep
- REAL(DP), dimension(0:nspec) molar_mass

5.36.1   Member Function/Subroutine Documentation

5.36.1.1 subroutine, public messy_mecca_aero::mecca_aero_calc_k_ex (REAL(DP), dimension(:), intent(in) *radius,* REAL(DP), intent(in) *temp,* REAL(DP), intent(in) *press,* LOGICAL, dimension(:), intent(in) *loghet,* REAL(DP), dimension(:), intent(in) *xaer,* REAL(DP), dimension(:), intent(in) *lwc,* REAL(DP), dimension(:), intent(in) *C,* REAL(DP), dimension(:,:), intent(out) *k_exf,* REAL(DP), dimension(:,:), intent(out) *k_exb,* REAL(DP), dimension(:), intent(out) *k_exf_N2O5,* REAL(DP), dimension(:), intent(out) *k_exf_ClNO3,* REAL(DP), dimension(:), intent(out) *k_exf_BrNO3* **)**

5.36.1.2 subroutine, public messy_mecca_aero::mecca_aero_calc_k_ex_ocean (REAL(dp), dimension(:), intent(in) *xaer,* REAL(dp), dimension(:), intent(in) *radius,* REAL(DP), intent(in) *temp,* REAL(dp), intent(in) *zmix,* REAL(dp), dimension(:,:), intent(inout) *k_exf,* REAL(dp), dimension(:,:), intent(inout) *k_exb* **)**

Here is the call graph for this function:
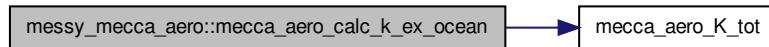
5.36.1.3 subroutine, public messy_mecca_aero::mecca_aero_diag (REAL(DP), intent(in) *zmr_Brsalt,* REAL(DP), intent(in) *zmr_Brorg,* REAL(DP), intent(in) *zmr_BrSScap,* REAL(DP), intent(inout) *zmrac_Brsalt,* REAL(DP), intent(inout) *zmrac_Brorg,* REAL(DP), intent(in) *zmrac_BrSScap* **)**

5.36.1.4 subroutine, public messy_mecca_aero::mecca_aero_init_gasaq (LOGICAL, intent(in), optional *l_print* **)**

5.36.2 Member Data Documentation

5.36.2.1 REAL(DP) messy_mecca_aero::alpha_T0 [private]

5.36.2.2 REAL(DP) messy_mecca_aero::alpha_Tdep [private]

5.36.2.3 REAL(DP) messy_mecca_aero::Henry_T0 [private]

5.36.2.4 REAL(DP) messy_mecca_aero::Henry_Tdep [private]

5.36.2.5 REAL(DP), dimension(0:nspec) messy_mecca_aero::molar_mass [private]

5.36.2.6 CHARACTER(len=∗), parameter, public messy_mecca_aero::submodstr = 'mecca_aero'

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_mecca_aero.f90

5.37 messy_mecca_box Module Reference

Public Member Functions

- subroutine, public mecca_init
- subroutine define_aerosol
- subroutine x0
- subroutine, public mecca_physc
- subroutine, public mecca_result
- subroutine, public mecca_finish

Public Attributes

- INTEGER, parameter NBL = 1
- REAL(DP), dimension(ip_max) jx = 0.
- REAL(DP), dimension(:), allocatable xaer
- REAL(DP), dimension(apn) cvfac
- REAL(DP), dimension(:), allocatable lwc
- REAL(DP), dimension(apn, nspec) k_exf
- REAL(DP), dimension(apn, nspec) k_exb
- REAL(DP) k_exf_N2O5
- REAL(DP) k_exf_ClNO3
- REAL(DP) k_exf_BrNO3
- REAL(DP) dummy_khet_Tr
- REAL(DP) dummy_khet_St
- REAL(DP), dimension(nspec) output
- CHARACTER(LEN=20), dimension(nspec) c_unit
- INTEGER ncid_aero
- INTEGER ncid_tracer
- INTEGER ncid_spec
- REAL(DP) HCO3m_rel
- REAL(DP) NO3m_rel
- REAL(DP) Clm_rel
- REAL(DP) Brm_rel
- REAL(DP) Im_rel
- REAL(DP) IO3m_rel
- REAL(DP) SO4mm_rel
- REAL(DP), dimension(:), allocatable csalt

- REAL(DP), dimension(:), allocatable exchng
- REAL(DP), dimension(:), allocatable radius
- REAL(DP), dimension(:), allocatable c0_NH4p
- REAL(DP), dimension(:), allocatable c0_Nap
- REAL(DP), dimension(:), allocatable c0_HCO3m
- REAL(DP), dimension(:), allocatable c0_NO3m
- REAL(DP), dimension(:), allocatable c0_Clm
- REAL(DP), dimension(:), allocatable c0_Brm
- REAL(DP), dimension(:), allocatable c0_Im
- REAL(DP), dimension(:), allocatable c0_IO3m
- REAL(DP), dimension(:), allocatable c0_SO4mm
- REAL(DP), dimension(:), allocatable c0_HSO4m
- REAL(DP), dimension(max_mcexp) mcexp

5.37.1 Member Function/Subroutine Documentation

5.37.1.1 subroutine messy_mecca_box::define_aerosol ( )

5.37.1.2 subroutine, public messy_mecca_box::mecca_finish ( )

5.37.1.3 subroutine, public messy_mecca_box::mecca_init ( )

5.37.1.4 subroutine, public messy_mecca_box::mecca_physc ( )

Here is the call graph for this function:
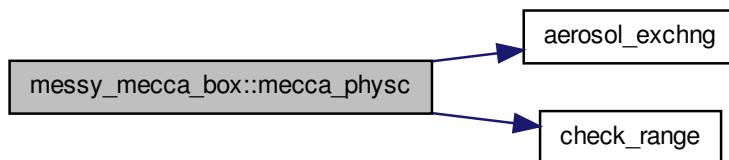
5.37.1.5 subroutine, public messy_mecca_box::mecca_result ( )

5.37.1.6 subroutine messy_mecca_box::x0 ( )

Here is the call graph for this function:
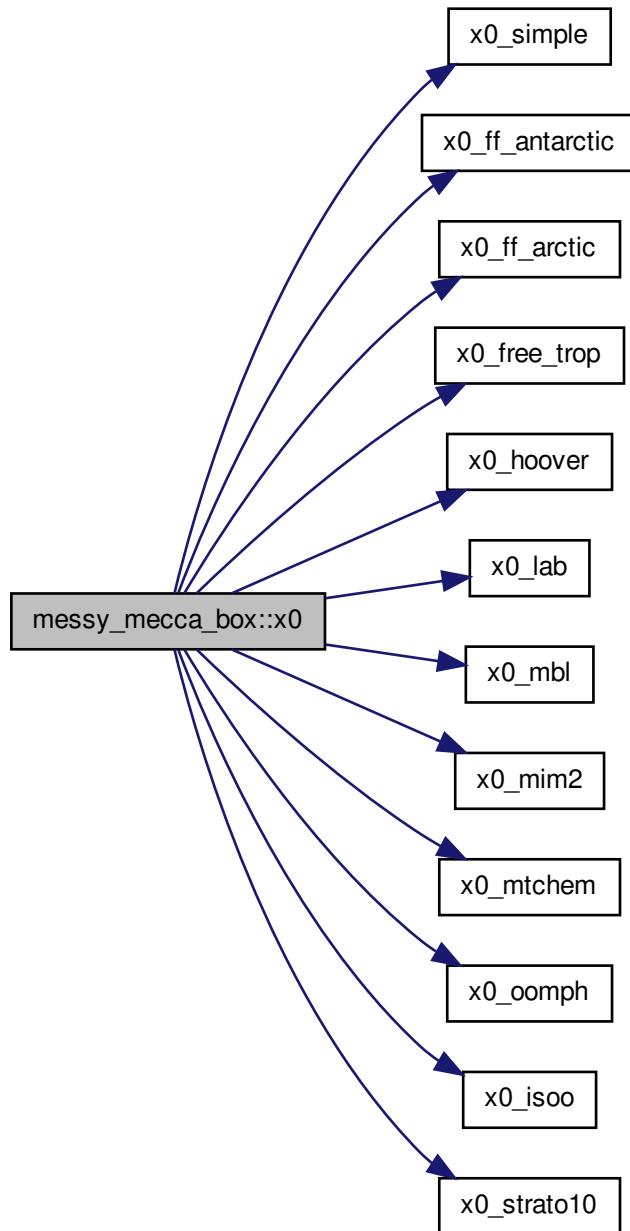
5.37.2 Member Data Documentation

5.37.2.1 REAL(DP) messy_mecca_box::Brm_rel

5.37.2.2 REAL(DP), dimension(:), allocatable messy_mecca_box::c0_Brm

5.37.2.3 REAL(DP), dimension(:), allocatable messy_mecca_box::c0_Clm

5.37.2.4 REAL(DP), dimension(:), allocatable messy_mecca_box::c0_HCO3m

5.37.2.5 REAL(DP), dimension(:), allocatable messy_mecca_box::c0_HSO4m

5.37.2.6 REAL(DP), dimension(:), allocatable messy_mecca_box::c0_Im

5.37.2.7 REAL(DP), dimension(:), allocatable messy_mecca_box::c0_IO3m

5.37.2.8 REAL(DP), dimension(:), allocatable messy_mecca_box::c0_Nap

5.37.2.9 REAL(DP), dimension(:), allocatable messy_mecca_box::c0_NH4p

5.37.2.10 REAL(DP), dimension(:), allocatable messy_mecca_box::c0_NO3m

5.37.2.11 REAL(DP), dimension(:), allocatable messy_mecca_box::c0_SO4mm

5.37.2.12 CHARACTER(LEN=20), dimension(nspec) messy_mecca_box::c_unit

5.37.2.13 REAL(DP) messy_mecca_box::Clm_rel

5.37.2.14 REAL(DP), dimension(:), allocatable messy_mecca_box::csalt

5.37.2.15 REAL(DP), dimension(apn) messy_mecca_box::cvfac

5.37.2.16 REAL(DP) messy_mecca_box::dummy_khet_St

5.37.2.17 REAL(DP) messy_mecca_box::dummy_khet_Tr

5.37.2.18 REAL(DP), dimension(:), allocatable messy_mecca_box::exchng

5.37.2.19 REAL(DP) messy_mecca_box::HCO3m_rel

5.37.2.20 REAL(DP) messy_mecca_box::Im_rel

5.37.2.21 REAL(DP) messy_mecca_box::IO3m_rel

5.37.2.22 REAL(DP), dimension(ip_max) messy_mecca_box::jx = 0.

5.37.2.23 REAL(DP), dimension(apn,nspec) messy_mecca_box::k_exb

5.37.2.24 REAL(DP), dimension(apn,nspec) messy_mecca_box::k_exf

5.37.2.25 REAL(DP) messy_mecca_box::k_exf_BrNO3

5.37.2.26 REAL(DP) messy_mecca_box::k_exf_ClNO3

5.37.2.27 REAL(DP) messy_mecca_box::k_exf_N2O5

5.37.2.28 REAL(DP), dimension(:), allocatable messy_mecca_box::lwc

5.37.2.29 REAL(DP), dimension(max_mcexp) messy_mecca_box::mcexp

5.37.2.30 INTEGER, parameter messy_mecca_box::NBL = 1

5.37.2.31 INTEGER messy_mecca_box::ncid_aero

5.37.2.32 INTEGER messy_mecca_box::ncid_spec

5.37.2.33 INTEGER messy_mecca_box::ncid_tracer

5.37.2.34 REAL(DP) messy_mecca_box::NO3m_rel

5.37.2.35 REAL(DP), dimension(nspec) messy_mecca_box::output

5.37.2.36 REAL(DP), dimension(:), allocatable messy_mecca_box::radius

5.37.2.37 REAL(DP) messy_mecca_box::SO4mm_rel

5.37.2.38 REAL(DP), dimension(:), allocatable messy_mecca_box::xaer

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_mecca_box.f90

5.38 messy_mecca_dbl_box Module Reference

Public Member Functions

- subroutine mecca_dbl_x0
- subroutine, public mecca_dbl_emis
- subroutine, public mecca_dbl_preprocess
- subroutine, public mecca_dbl_postprocess
- subroutine, public mecca_dbl_init
- subroutine, public mecca_dbl_result (model_time)
- subroutine, public mecca_dbl_finish

5.38.1 Member Function/Subroutine Documentation

5.38.1.1 subroutine, public messy_mecca_dbl_box::mecca_dbl_emis ( )

5.38.1.2 subroutine, public messy_mecca_dbl_box::mecca_dbl_finish ( )

5.38.1.3 subroutine, public messy_mecca_dbl_box::mecca_dbl_init ( )

5.38.1.4 subroutine, public messy_mecca_dbl_box::mecca_dbl_postprocess ( )

5.38.1.5 subroutine, public messy_mecca_dbl_box::mecca_dbl_preprocess ( )

5.38.1.6 subroutine, public messy_mecca_dbl_box::mecca_dbl_result (REAL(dp), intent(in) *model_time*)

5.38.1.7 subroutine messy_mecca_dbl_box::mecca_dbl_x0 ( )

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_mecca_dbl_-box.f90

5.39 messy_mecca_khet Module Reference

Public Member Functions

- subroutine, public mecca_khet_read_nml_ctrl (status, iou)
- ELEMENTAL REAL(dp) function, public k_mt (M, T, A, gamma)

Public Attributes

- CHARACTER(LEN=∗), parameter, public submodstr = modstr//'_khet'
- LOGICAL, save, public l_troposphere = .FALSE.
- LOGICAL, save, public l_stratosphere = .FALSE.
- REAL(dp), parameter, public M_HNO3 = 63.012_dp
- REAL(dp), parameter, public M_N2O5 = 108.00_dp
- REAL(dp), parameter, public gamma_N2O5 = 0.02_dp
- REAL(dp), parameter, public gamma_HNO3 = 0.1_dp
- REAL(dp), parameter, public gamma_Hg = 0.0_dp
- REAL(dp), parameter, public gamma_RGM = 0.1_dp

5.39.1 Member Function/Subroutine Documentation

5.39.1.1 ELEMENTAL REAL(dp) function, public messy_mecca_khet::k_mt (REAL(dp), intent(in) *M,* REAL(dp), intent(in) *T,* REAL(dp), intent(in) *A,* REAL(dp), intent(in) *gamma*)

5.39.1.2 subroutine, public messy_mecca_khet::mecca_khet_read_nml_ctrl (INTEGER, intent(out) *status,* INTEGER, intent(in) *iou*)

5.39.2 Member Data Documentation

5.39.2.1 REAL(dp), parameter, public messy_mecca_khet::gamma_Hg = 0.0_dp

5.39.2.2 REAL(dp), parameter, public messy_mecca_khet::gamma_HNO3 = 0.1_dp

5.39.2.3 REAL(dp), parameter, public messy_mecca_khet::gamma_N2O5 = 0.02_dp

5.39.2.4 REAL(dp), parameter, public messy_mecca_khet::gamma_RGM = 0.1_dp

5.39.2.5 LOGICAL, save, public messy_mecca_khet::l_stratosphere = .FALSE.

5.39.2.6 LOGICAL, save, public messy_mecca_khet::l_troposphere = .FALSE.

5.39.2.7 REAL(dp), parameter, public messy_mecca_khet::M_HNO3 = 63.012_dp

5.39.2.8 REAL(dp), parameter, public messy_mecca_khet::M_N2O5 = 108.00_dp

5.39.2.9 CHARACTER(LEN=∗), parameter, public messy_mecca_khet::submodstr = modstr//'_khet'

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_mecca_khet.f90

5.40   messy_mecca_kpp Module Reference

Public Member Functions

- subroutine initialize_kpp_ctrl (status, iou, modstr)
- subroutine error_output (C, ierr, PE)
- subroutine kpp_integrate (time_step, Conc, ierrf, xNacc, xNrej, istatus, l_debug, PE)
- subroutine fill_TEMP (status, array)
- subroutine fill_cair (status, array)
- subroutine fill_press (status, array)
- subroutine fill_mcexp (status, array)
- subroutine fill_xaer (status, array)
- subroutine fill_cvfac (status, array)

- subroutine fill_lwc (status, array)
- subroutine fill_k_exf (status, array)
- subroutine fill_k_exb (status, array)
- subroutine fill_k_exf_N2O5 (status, array)
- subroutine fill_k_exf_ClNO3 (status, array)
- subroutine fill_k_exf_BrNO3 (status, array)
- subroutine fill_JX (status, array)
- subroutine fill_khet_Tr (status, array)
- subroutine fill_khet_St (status, array)
- subroutine fill_temp_ion (status, array)
- subroutine fill_temp_elec (status, array)

Public Attributes

- INTEGER, parameter NMAXFIXSTEPS = 50
- LOGICAL, public l_fixed_step = .FALSE.
- INTEGER, public nfsteps = 1
- INTEGER, parameter, public NKPPCTRL = 20
- INTEGER, dimension(nkppctrl), public icntrl = 0
- REAL(DP), dimension(nkppctrl), public rcntrl = 0.0_dp
- REAL(DP), dimension(nmaxfixsteps), public t_steps = 0.0_dp

5.40.1 Member Function/Subroutine Documentation

5.40.1.1 subroutine **messy_mecca_kpp::error_output** (REAL(dp), dimension(:), intent(in) *C,* INTEGER, intent(in) *ierr,* INTEGER, intent(in) *PE*)

5.40.1.2 subroutine **messy_mecca_kpp::fill_cair** (INTEGER, intent(out) *status,* REAL (dp), dimension(:), intent(in) *array*)

5.40.1.3 subroutine **messy_mecca_kpp::fill_cvfac** (INTEGER, intent(out) *status,* REAL (dp), dimension(:,:), intent(in) *array*)

5.40.1.4 subroutine **messy_mecca_kpp::fill_JX** (INTEGER, intent(out) *status,* REAL (dp), dimension(:,:), intent(in) *array*)

5.40.1.5 subroutine **messy_mecca_kpp::fill_k_exb** (INTEGER, intent(out) *status,* REAL (dp), dimension(:,:,:), intent(in) *array*)

5.40.1.6 subroutine **messy_mecca_kpp::fill_k_exf** (INTEGER, intent(out) *status,* REAL (dp), dimension(:,:,:), intent(in) *array*)

5.40.1.7 subroutine **messy_mecca_kpp::fill_k_exf_BrNO3** (INTEGER, intent(out) *status,* REAL (dp), dimension(:,:), intent(in) *array*)

5.40.1.8 subroutine **messy_mecca_kpp::fill_k_exf_CINO3 (** INTEGER, intent(out) *status,* REAL (dp), dimension(:,:), intent(in) *array* **)**

5.40.1.9 subroutine **messy_mecca_kpp::fill_k_exf_N2O5 (** INTEGER, intent(out) *status,* REAL (dp), dimension(:,:), intent(in) *array* **)**

5.40.1.10 subroutine **messy_mecca_kpp::fill_khet_St (** INTEGER, intent(out) *status,* REAL (dp), dimension(:,:), intent(in) *array* **)**

5.40.1.11 subroutine **messy_mecca_kpp::fill_khet_Tr (** INTEGER, intent(out) *status,* REAL (dp), dimension(:,:), intent(in) *array* **)**

5.40.1.12 subroutine **messy_mecca_kpp::fill_lwc (** INTEGER, intent(out) *status,* REAL (dp), dimension(:,:), intent(in) *array* **)**

5.40.1.13 subroutine **messy_mecca_kpp::fill_mcexp (** INTEGER, intent(out) *status,* REAL (dp), dimension(:,:), intent(in) *array* **)**

5.40.1.14 subroutine **messy_mecca_kpp::fill_press (** INTEGER, intent(out) *status,* REAL (dp), dimension(:), intent(in) *array* **)**

5.40.1.15 subroutine **messy_mecca_kpp::fill_TEMP (** INTEGER, intent(out) *status,* REAL (dp), dimension(:), intent(in) *array* **)**

5.40.1.16 subroutine **messy_mecca_kpp::fill_temp_elec (** INTEGER, intent(out) *status,* REAL (dp), dimension(:), intent(in) *array* **)**

5.40.1.17 subroutine **messy_mecca_kpp::fill_temp_ion (** INTEGER, intent(out) *status,* REAL (dp), dimension(:), intent(in) *array* **)**

5.40.1.18 subroutine **messy_mecca_kpp::fill_xaer (** INTEGER, intent(out) *status,* REAL (dp), dimension(:,:), intent(in) *array* **)**

5.40.1.19 subroutine **messy_mecca_kpp::initialize_kpp_ctrl (** INTEGER, intent(out) *status,* INTEGER, intent(in) *iou,* CHARACTER(LEN=∗), intent(in) *modstr* **)**

Here is the call graph for this function:

5.40.1.20 **subroutine messy_mecca_kpp::kpp_integrate (REAL(dp), intent(in)** *time_step,* **REAL(dp), dimension(:,:), intent(inout)** *Conc,* **INTEGER, dimension(:), intent(out), optional** *ierrf,* **INTEGER, dimension(:), intent(out), optional** *xNacc,* **INTEGER, dimension(:), intent(out), optional** *xNrej,* **INTEGER, dimension(:), intent(inout), optional** *istatus,* **LOGICAL, intent(in), optional** *l_debug,* **INTEGER, intent(in), optional** *PE* **)**

5.40.2 Member Data Documentation

5.40.2.1 **INTEGER, dimension(nkppctrl), public messy_mecca_kpp::icntrl = 0**

5.40.2.2 **LOGICAL, public messy_mecca_kpp::l_fixed_step = .FALSE.**

5.40.2.3 **INTEGER, public messy_mecca_kpp::nfsteps = 1**

5.40.2.4 **INTEGER, parameter, public messy_mecca_kpp::NKPPCTRL = 20**

5.40.2.5 **INTEGER, parameter messy_mecca_kpp::NMAXFIXSTEPS = 50**

5.40.2.6 **REAL(DP), dimension(nkppctrl), public messy_mecca_kpp::rcntrl = 0.0_dp**

5.40.2.7 **REAL(DP), dimension(nmaxfixsteps), public messy_mecca_kpp::t_steps = 0.0_dp**

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_mecca_kpp.f90

5.41 messy_mecca_kpp_Function Module Reference

Public Member Functions

- subroutine Fun (V, F, RCT, Vdot)

Public Attributes

- REAL(kind=dp) A

5.41.1 Member Function/Subroutine Documentation

5.41.1.1 **subroutine messy_mecca_kpp_Function::Fun (REAL(kind=dp), dimension(nvar)** *V,* **REAL(kind=dp), dimension(nfix)** *F,* **REAL(kind=dp), dimension(nreact)** *RCT,* **REAL(kind=dp), dimension(nvar)** *Vdot* **)**

5.41.2 Member Data Documentation

5.41.2.1 REAL(kind=dp) messy_mecca_kpp_Function::A

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_mecca_kpp_-
  function.f90

5.42 messy_mecca_kpp_Global Module Reference

Public Attributes

- REAL(kind=dp) C
- REAL(kind=dp) VAR
- REAL(kind=dp) FIX
- REAL(kind=dp) RCONST
- REAL(kind=dp) TIME
- REAL(kind=dp) SUN
- REAL(kind=dp) TEMP
- REAL(kind=dp) TSTART
- REAL(kind=dp) TEND
- REAL(kind=dp) DT
- REAL(kind=dp) ATOL
- REAL(kind=dp) RTOL
- REAL(kind=dp) STEPMIN
- REAL(kind=dp) STEPMAX
- REAL(kind=dp) CFACTOR
- CHARACTER(LEN=∗), parameter, public timestamp = 'xmecca was run on 2015-
  06-20 at 14:09:00 by sander on machine bromine'
- CHARACTER(LEN=∗), parameter, public batchfile = 'simple'
- CHARACTER(LEN=∗), parameter, public gas_spc_file = '-rw------- 1 sander
  sander 35285 Nov 7 2014 gas.spc'
- CHARACTER(LEN=∗), parameter, public aqueous_spc_file = '-rw------- 1 sander
  sander 8444 Apr 19 2010 aqueous.spc'
- CHARACTER(LEN=∗), parameter, public gas_eqn_file = '-rw-r--r-- 1 sander
  sander 150920 Mar 23 16:46 gas.eqn'
- CHARACTER(LEN=∗), parameter, public aqueous_eqn_file = '-rw------- 1 sander
  sander 58889 Mar 26 16:22 aqueous.eqn'
- CHARACTER(LEN=∗), parameter, public gas_spc_file_sum = '14323 35'
- CHARACTER(LEN=∗), parameter, public aqueous_spc_file_sum = '54945 9'
- CHARACTER(LEN=∗), parameter, public gas_eqn_file_sum = '61164 148'
- CHARACTER(LEN=∗), parameter, public aqueous_eqn_file_sum = '42695 58'
- CHARACTER(LEN=∗), parameter, public rplfile = ''
- CHARACTER(LEN=∗), parameter, public wanted = 'Tr && G && !C && !S && !Cl
  && !Br && !I && !Hg'
- CHARACTER(LEN=∗), parameter, public diagtracfile = ''
- CHARACTER(LEN=∗), parameter, public rxnrates = 'n'

- CHARACTER(LEN=∗), parameter, public tagdbl = 'n'
- LOGICAL, parameter REQ_MCFCT = .FALSE.
- INTEGER, parameter, public APN = 1
- INTEGER, dimension(apn), public ind_O2_a = 0
- INTEGER, dimension(apn), public ind_O3_a = 0
- INTEGER, dimension(apn), public ind_OH_a = 0
- INTEGER, dimension(apn), public ind_HO2_a = 0
- INTEGER, dimension(apn), public ind_H2O_a = 0
- INTEGER, dimension(apn), public ind_H2O2_a = 0
- INTEGER, dimension(apn), public ind_NH3_a = 0
- INTEGER, dimension(apn), public ind_NO_a = 0
- INTEGER, dimension(apn), public ind_NO2_a = 0
- INTEGER, dimension(apn), public ind_NO3_a = 0
- INTEGER, dimension(apn), public ind_HONO_a = 0
- INTEGER, dimension(apn), public ind_HNO3_a = 0
- INTEGER, dimension(apn), public ind_HNO4_a = 0
- INTEGER, dimension(apn), public ind_N2O5_a = 0
- INTEGER, dimension(apn), public ind_CH3OH_a = 0
- INTEGER, dimension(apn), public ind_HCOOH_a = 0
- INTEGER, dimension(apn), public ind_HCHO_a = 0
- INTEGER, dimension(apn), public ind_CH3O2_a = 0
- INTEGER, dimension(apn), public ind_CH3OOH_a = 0
- INTEGER, dimension(apn), public ind_CO2_a = 0
- INTEGER, dimension(apn), public ind_CH3CO2H_a = 0
- INTEGER, dimension(apn), public ind_PAN_a = 0
- INTEGER, dimension(apn), public ind_C2H5O2_a = 0
- INTEGER, dimension(apn), public ind_CH3CHO_a = 0
- INTEGER, dimension(apn), public ind_CH3COCH3_a = 0
- INTEGER, dimension(apn), public ind_Cl_a = 0
- INTEGER, dimension(apn), public ind_Cl2_a = 0
- INTEGER, dimension(apn), public ind_HCl_a = 0
- INTEGER, dimension(apn), public ind_HOCl_a = 0
- INTEGER, dimension(apn), public ind_Br_a = 0
- INTEGER, dimension(apn), public ind_Br2_a = 0
- INTEGER, dimension(apn), public ind_HBr_a = 0
- INTEGER, dimension(apn), public ind_HOBr_a = 0
- INTEGER, dimension(apn), public ind_BrCl_a = 0
- INTEGER, dimension(apn), public ind_I2_a = 0
- INTEGER, dimension(apn), public ind_IO_a = 0
- INTEGER, dimension(apn), public ind_HI_a = 0
- INTEGER, dimension(apn), public ind_HOI_a = 0
- INTEGER, dimension(apn), public ind_ICl_a = 0
- INTEGER, dimension(apn), public ind_IBr_a = 0
- INTEGER, dimension(apn), public ind_HIO3_a = 0
- INTEGER, dimension(apn), public ind_SO2_a = 0
- INTEGER, dimension(apn), public ind_H2SO4_a = 0

- INTEGER, dimension(apn), public ind_DMS_a = 0
- INTEGER, dimension(apn), public ind_DMSO_a = 0
- INTEGER, dimension(apn), public ind_Hg_a = 0
- INTEGER, dimension(apn), public ind_HgO_a = 0
- INTEGER, dimension(apn), public ind_HgOH_a = 0
- INTEGER, dimension(apn), public ind_HgOHOH_a = 0
- INTEGER, dimension(apn), public ind_HgOHCl_a = 0
- INTEGER, dimension(apn), public ind_HgCl2_a = 0
- INTEGER, dimension(apn), public ind_HgBr2_a = 0
- INTEGER, dimension(apn), public ind_HgSO3_a = 0
- INTEGER, dimension(apn), public ind_ClHgBr_a = 0
- INTEGER, dimension(apn), public ind_BrHgOBr_a = 0
- INTEGER, dimension(apn), public ind_ClHgOBr_a = 0
- INTEGER, dimension(apn), public ind_O2m_a = 0
- INTEGER, dimension(apn), public ind_OHm_a = 0
- INTEGER, dimension(apn), public ind_Hp_a = 0
- INTEGER, dimension(apn), public ind_NH4p_a = 0
- INTEGER, dimension(apn), public ind_NO2m_a = 0
- INTEGER, dimension(apn), public ind_NO3m_a = 0
- INTEGER, dimension(apn), public ind_NO4m_a = 0
- INTEGER, dimension(apn), public ind_CO3m_a = 0
- INTEGER, dimension(apn), public ind_HCOOm_a = 0
- INTEGER, dimension(apn), public ind_HCO3m_a = 0
- INTEGER, dimension(apn), public ind_CH3COOm_a = 0
- INTEGER, dimension(apn), public ind_Clm_a = 0
- INTEGER, dimension(apn), public ind_Cl2m_a = 0
- INTEGER, dimension(apn), public ind_ClOm_a = 0
- INTEGER, dimension(apn), public ind_ClOHm_a = 0
- INTEGER, dimension(apn), public ind_Brm_a = 0
- INTEGER, dimension(apn), public ind_Br2m_a = 0
- INTEGER, dimension(apn), public ind_BrOm_a = 0
- INTEGER, dimension(apn), public ind_BrOHm_a = 0
- INTEGER, dimension(apn), public ind_BrCl2m_a = 0
- INTEGER, dimension(apn), public ind_Br2Clm_a = 0
- INTEGER, dimension(apn), public ind_Im_a = 0
- INTEGER, dimension(apn), public ind_IO2m_a = 0
- INTEGER, dimension(apn), public ind_IO3m_a = 0
- INTEGER, dimension(apn), public ind_ICl2m_a = 0
- INTEGER, dimension(apn), public ind_IClBrm_a = 0
- INTEGER, dimension(apn), public ind_IBr2m_a = 0
- INTEGER, dimension(apn), public ind_SO3m_a = 0
- INTEGER, dimension(apn), public ind_SO3mm_a = 0
- INTEGER, dimension(apn), public ind_SO4m_a = 0
- INTEGER, dimension(apn), public ind_SO4mm_a = 0
- INTEGER, dimension(apn), public ind_SO5m_a = 0
- INTEGER, dimension(apn), public ind_HSO3m_a = 0

- INTEGER, dimension(apn), public ind_HSO4m_a = 0
- INTEGER, dimension(apn), public ind_HSO5m_a = 0
- INTEGER, dimension(apn), public ind_CH3SO3m_a = 0
- INTEGER, dimension(apn), public ind_CH2OHSO3m_a = 0
- INTEGER, dimension(apn), public ind_Hgp_a = 0
- INTEGER, dimension(apn), public ind_Hgpp_a = 0
- INTEGER, dimension(apn), public ind_HgOHp_a = 0
- INTEGER, dimension(apn), public ind_HgClp_a = 0
- INTEGER, dimension(apn), public ind_HgCl3m_a = 0
- INTEGER, dimension(apn), public ind_HgCl4mm_a = 0
- INTEGER, dimension(apn), public ind_HgBrp_a = 0
- INTEGER, dimension(apn), public ind_HgBr3m_a = 0
- INTEGER, dimension(apn), public ind_HgBr4mm_a = 0
- INTEGER, dimension(apn), public ind_HgSO32mm_a = 0
- INTEGER, dimension(apn), public ind_D1O_a = 0
- INTEGER, dimension(apn), public ind_D2O_a = 0
- INTEGER, dimension(apn), public ind_DAHp_a = 0
- INTEGER, dimension(apn), public ind_DA_a = 0
- INTEGER, dimension(apn), public ind_DAm_a = 0
- INTEGER, dimension(apn), public ind_DGtAi_a = 0
- INTEGER, dimension(apn), public ind_DGtAs_a = 0
- INTEGER, dimension(apn), public ind_PROD1_a = 0
- INTEGER, dimension(apn), public ind_PROD2_a = 0
- INTEGER, dimension(apn), public ind_Nap_a = 0
- REAL k_HO2_HO2
- REAL k_NO3_NO2
- REAL k_NO2_HO2
- REAL k_HNO3_OH
- REAL k_CH3O2
- REAL k_CH3OOH_OH
- REAL k_CH3CO3_NO2
- REAL k_PAN_M
- REAL k_ClO_ClO
- REAL k_BrO_NO2
- REAL k_I_NO2
- REAL k_DMS_OH
- REAL G7402a_yield
- REAL beta_null_CH3NO3
- REAL beta_inf_CH3NO3
- REAL beta_CH3NO3
- REAL k_NO2_CH3O2
- REAL k_G4138
- REAL k_G9408
- REAL KRO2NO
- REAL KRO2HO2
- REAL KAPHO2

- REAL KAPNO
- REAL KRO2NO3
- REAL KNO3AL
- REAL J_IC3H7NO3
- REAL J_ACETOL
- REAL(dp) RO2
- REAL k_O3s
- REAL k_PrO2_HO2
- REAL k_PrO2_NO
- REAL k_PrO2_CH3O2
- REAL k0_NO_HO2
- REAL k1d_NO_HO2
- REAL k1w_NO_HO2
- REAL k2d_NO_HO2
- REAL k2w_NO_HO2
- REAL alpha_NO_HO2
- REAL beta_NO_HO2
- REAL(kind=dp), parameter k_s = 8.42E-13
- REAL(kind=dp), parameter k_t = 1.75E-12
- REAL(kind=dp), parameter k_p = 1.24E-13
- REAL(kind=dp), parameter k_rohro = 1.6E-13
- REAL(kind=dp), parameter f_soh = 3.44
- REAL(kind=dp), parameter f_toh = 2.68
- REAL(kind=dp), parameter f_sooh = 7.
- REAL(kind=dp), parameter f_tooh = 7.
- REAL(kind=dp), parameter f_ono2 = 0.04
- REAL(kind=dp), parameter f_ch2ono2 = 0.2
- REAL(kind=dp), parameter f_cpan = .25
- REAL(kind=dp), parameter f_allyl = 3.6
- REAL(kind=dp), parameter f_alk = 1.23
- REAL(kind=dp), parameter f_cho = 0.55
- REAL(kind=dp), parameter f_co2h = 1.67
- REAL(kind=dp), parameter f_co = 0.73
- REAL(kind=dp), parameter f_o = 8.15
- REAL(kind=dp), parameter f_pch2oh = 1.29
- REAL(kind=dp), parameter f_tch2oh = 0.53
- REAL(kind=dp), parameter k_adp = 0.45E-11
- REAL(kind=dp), parameter k_ads = 3.0E-11
- REAL(kind=dp), parameter k_adt = 5.5E-11
- REAL(kind=dp), parameter k_adsecprim = 3.0E-11
- REAL(kind=dp), parameter k_adtertprim = 5.7E-11
- REAL(kind=dp), parameter a_pan = 0.56
- REAL(kind=dp), parameter a_cho = 0.31
- REAL(kind=dp), parameter a_coch3 = 0.76
- REAL(kind=dp), parameter a_ch2ono2 = 0.47
- REAL(kind=dp), parameter a_ch2oh = 1.7

- REAL(kind=dp), parameter a_ch2ooh = 0.21
- REAL(kind=dp), parameter a_coh = 2.2
- REAL(kind=dp), parameter a_cooh = 2.2
- REAL(kind=dp), parameter a_co2h = 0.25
- REAL(dp), parameter RCO3_OH = 0.69
- REAL(dp), parameter RCO3_O3 = 0.10
- REAL(dp), parameter RCO3_OOH = 0.21
- REAL(dp) cair
- REAL(dp) press
- REAL(dp) temp_ion
- REAL(dp) temp_elec
- REAL(dp), dimension(apn) xaer
- REAL(dp), dimension(apn) cvfac
- REAL(dp), dimension(apn) lwc
- REAL(dp), dimension(apn, nspec) k_exf = 0.
- REAL(dp), dimension(apn, nspec) k_exb = 0.
- REAL(dp) k_exf_N2O5 = 0.
- REAL(dp) k_exf_ClNO3 = 0.
- REAL(dp) k_exf_BrNO3 = 0.
- INTEGER, public xnom7sulf = 1
- REAL(dp), dimension(ip_max) jx = 0.
- INTEGER, parameter, public iht_N2O5 = 1
- INTEGER, parameter, public iht_HNO3 = 2
- INTEGER, parameter, public iht_Hg = 3
- INTEGER, parameter, public iht_RGM = 4
- INTEGER, parameter, public IHT_MAX = 4
- REAL(dp) khet_Tr = 0.
- INTEGER, parameter ihs_N2O5_H2O = 1
- INTEGER, parameter ihs_HOCl_HCl = 2
- INTEGER, parameter ihs_ClNO3_HCl = 3
- INTEGER, parameter ihs_ClNO3_H2O = 4
- INTEGER, parameter ihs_N2O5_HCl = 5
- INTEGER, parameter ihs_ClNO3_HBr = 6
- INTEGER, parameter ihs_BrNO3_HCl = 7
- INTEGER, parameter ihs_HOCl_HBr = 8
- INTEGER, parameter ihs_HOBr_HCl = 9
- INTEGER, parameter ihs_HOBr_HBr = 10
- INTEGER, parameter ihs_BrNO3_H2O = 11
- INTEGER, parameter ihs_Hg = 12
- INTEGER, parameter ihs_RGM = 13
- INTEGER, parameter, public IHS_MAX = 13
- REAL(dp) khet_St = 0.
- REAL(dp), parameter testfac_HO2 = 1.e5_dp
- REAL(dp), parameter testfac_HONO = 1.e5_dp
- REAL(dp), parameter testfac_HNO3 = 1.e7_dp
- REAL(dp), parameter testfac_HNO4 = 1.e5_dp

- REAL(dp), parameter testfac_HCOOH = 1.e5_dp
- REAL(dp), parameter testfac_SO2 = 1.e9_dp
- REAL(dp), parameter testfac_HSO3m = 1.e9_dp
- REAL(dp), parameter testfac_HSO4m = 1.e7_dp
- REAL(dp), parameter testfac_NH3 = 1.e7_dp
- REAL(dp), parameter testfac_H2O = 1.e9_dp
- REAL(dp), parameter testfac_CO2 = 1.e5_dp
- REAL(dp), parameter testfac_HCl = 1.e2_dp
- REAL(dp), parameter testfac_HBr = 1.e6_dp
- REAL(dp), parameter testfac_HOCl = 1.e2_dp
- REAL(dp), parameter testfac_HOBr = 1.e2_dp
- REAL(dp), parameter testfac_ICl = 1.e2_dp
- REAL(dp), parameter testfac_IBr = 1.e2_dp
- REAL(dp), parameter testfac_IClBr = 1.e2_dp
- REAL(dp), parameter testfac_H2SO4 = 1.e7_dp
- LOGICAL, parameter REQ_HET = .FALSE.
- LOGICAL, parameter REQ_PHOTRAT = .TRUE.
- LOGICAL, parameter REQ_AEROSOL = .FALSE.
- INTEGER, parameter, public MAX_MCEXP = 1
- REAL, dimension(max_mcexp) mcexp
- CHARACTER(LEN=∗), parameter, public mecca_spc_file = '-rw-r--r-- 1 sander sander 44126 Jun 20 14:09 mecca.spc'
- CHARACTER(LEN=∗), parameter, public mecca_eqn_file = '-rw------- 1 sander sander 42671 Jun 20 14:09 mecca.eqn'
- CHARACTER(LEN=∗), parameter, public mecca_spc_file_sum = '20767 44'
- CHARACTER(LEN=∗), parameter, public mecca_eqn_file_sum = '55078 42'
- CHARACTER(LEN=∗), parameter, public kppoption = 'k'
- CHARACTER(LEN=∗), parameter, public KPP_HOME = '/home/sander/e2/messy-_d2.50s_rs/messy/tools/kpp'
- CHARACTER(LEN=∗), parameter, public KPP_version = '2.2.1_rs5'
- CHARACTER(LEN=∗), parameter, public integr = 'rosenbrock_posdef'

5.42.1 Member Data Documentation

5.42.1.1 REAL(kind=dp), parameter messy_mecca_kpp_Global::a_ch2oh = 1.7

5.42.1.2 REAL(kind=dp), parameter messy_mecca_kpp_Global::a_ch2ono2 = 0.47

5.42.1.3 REAL(kind=dp), parameter messy_mecca_kpp_Global::a_ch2ooh = 0.21

5.42.1.4 REAL(kind=dp), parameter messy_mecca_kpp_Global::a_cho = 0.31

5.42.1.5 REAL(kind=dp), parameter messy_mecca_kpp_Global::a_co2h = 0.25

5.42.1.6 REAL(kind=dp), parameter messy_mecca_kpp_Global::a_coch3 = 0.76

5.42.1.7 REAL(kind=dp), parameter messy_mecca_kpp_Global::a_coh = 2.2

5.42.1.8 REAL(kind=dp), parameter messy_mecca_kpp_Global::a_cooh = 2.2

5.42.1.9 REAL(kind=dp), parameter messy_mecca_kpp_Global::a_pan = 0.56

5.42.1.10 REAL messy_mecca_kpp_Global::alpha_NO_HO2

5.42.1.11 INTEGER, parameter, public messy_mecca_kpp_Global::APN = 1

5.42.1.12 CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_Global-::aqueous_eqn_file = '-rw------- 1 sander sander 58889 Mar 26 16:22 aqueous.eqn'

5.42.1.13 CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_Global::aqueous-_eqn_file_sum = '42695 58'

5.42.1.14 CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_Global-::aqueous_spc_file = '-rw------- 1 sander sander 8444 Apr 19 2010 aqueous.spc'

5.42.1.15 CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_Global::aqueous-_spc_file_sum = '54945 9'

5.42.1.16 REAL(kind=dp) messy_mecca_kpp_Global::ATOL

5.42.1.17 CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_Global::batchfile = 'simple'

5.42.1.18 REAL messy_mecca_kpp_Global::beta_CH3NO3

5.42.1.19 REAL messy_mecca_kpp_Global::beta_inf_CH3NO3

5.42.1.20 REAL messy_mecca_kpp_Global::beta_NO_HO2

5.42.1.21 REAL messy_mecca_kpp_Global::beta_null_CH3NO3

5.42.1.22 REAL(kind=dp) messy_mecca_kpp_Global::C

5.42.1.23 REAL(dp) messy_mecca_kpp_Global::cair

5.42.1.24 REAL(kind=dp) messy_mecca_kpp_Global::CFACTOR

5.42.1.25 REAL(dp), dimension(apn) messy_mecca_kpp_Global::cvfac

5.42.1.26 CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_Global-::diagtracfile = ''

5.42.1.27 REAL(kind=dp) messy_mecca_kpp_Global::DT

5.42.1.28 REAL(kind=dp), parameter messy_mecca_kpp_Global::f_alk = 1.23

5.42.1.29 REAL(kind=dp), parameter messy_mecca_kpp_Global::f_allyl = 3.6

5.42.1.30 REAL(kind=dp), parameter messy_mecca_kpp_Global::f_ch2ono2 = 0.2

5.42.1.31 REAL(kind=dp), parameter messy_mecca_kpp_Global::f_cho = 0.55

5.42.1.32 REAL(kind=dp), parameter messy_mecca_kpp_Global::f_co = 0.73

5.42.1.33 REAL(kind=dp), parameter messy_mecca_kpp_Global::f_co2h = 1.67

5.42.1.34 REAL(kind=dp), parameter messy_mecca_kpp_Global::f_cpan = .25

5.42.1.35 REAL(kind=dp), parameter messy_mecca_kpp_Global::f_o = 8.15

5.42.1.36 REAL(kind=dp), parameter messy_mecca_kpp_Global::f_ono2 = 0.04

5.42.1.37 REAL(kind=dp), parameter messy_mecca_kpp_Global::f_pch2oh = 1.29

5.42.1.38 REAL(kind=dp), parameter messy_mecca_kpp_Global::f_soh = 3.44

5.42.1.39 REAL(kind=dp), parameter messy_mecca_kpp_Global::f_sooh = 7.

5.42.1.40 REAL(kind=dp), parameter messy_mecca_kpp_Global::f_tch2oh = 0.53

5.42.1.41 REAL(kind=dp), parameter messy_mecca_kpp_Global::f_toh = 2.68

5.42.1.42 REAL(kind=dp), parameter messy_mecca_kpp_Global::f_tooh = 7.

5.42.1.43 REAL(kind=dp) messy_mecca_kpp_Global::FIX

5.42.1.44 REAL messy_mecca_kpp_Global::G7402a_yield

5.42.1.45 CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_Global-::gas_eqn_file = '-rw-r--r-- 1 sander sander 150920 Mar 23 16:46 gas.eqn'

5.42.1.46 CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_Global::gas_eqn-_file_sum = '61164 148'

5.42.1.47 CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_-Global::gas_spc_file = '-rw------- 1 sander sander 35285 Nov 7 2014 gas.spc'

**5.42.1.48 CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_Global::gas_spc-
_file_sum = '14323 35'**

5.42.1.49 INTEGER, parameter messy_mecca_kpp_Global::ihs_BrNO3_H2O = 11

5.42.1.50 INTEGER, parameter messy_mecca_kpp_Global::ihs_BrNO3_HCl = 7

5.42.1.51 INTEGER, parameter messy_mecca_kpp_Global::ihs_ClNO3_H2O = 4

5.42.1.52 INTEGER, parameter messy_mecca_kpp_Global::ihs_ClNO3_HBr = 6

5.42.1.53 INTEGER, parameter messy_mecca_kpp_Global::ihs_ClNO3_HCl = 3

5.42.1.54 INTEGER, parameter messy_mecca_kpp_Global::ihs_Hg = 12

5.42.1.55 INTEGER, parameter messy_mecca_kpp_Global::ihs_HOBr_HBr = 10

5.42.1.56 INTEGER, parameter messy_mecca_kpp_Global::ihs_HOBr_HCl = 9

5.42.1.57 INTEGER, parameter messy_mecca_kpp_Global::ihs_HOCl_HBr = 8

5.42.1.58 INTEGER, parameter messy_mecca_kpp_Global::ihs_HOCl_HCl = 2

5.42.1.59 INTEGER, parameter, public messy_mecca_kpp_Global::IHS_MAX = 13

5.42.1.60 INTEGER, parameter messy_mecca_kpp_Global::ihs_N2O5_H2O = 1

5.42.1.61 INTEGER, parameter messy_mecca_kpp_Global::ihs_N2O5_HCl = 5

5.42.1.62 INTEGER, parameter messy_mecca_kpp_Global::ihs_RGM = 13

5.42.1.63 INTEGER, parameter, public messy_mecca_kpp_Global::iht_Hg = 3

5.42.1.64 INTEGER, parameter, public messy_mecca_kpp_Global::iht_HNO3 = 2

5.42.1.65 INTEGER, parameter, public messy_mecca_kpp_Global::IHT_MAX = 4

5.42.1.66 INTEGER, parameter, public messy_mecca_kpp_Global::iht_N2O5 = 1

5.42.1.67 INTEGER, parameter, public messy_mecca_kpp_Global::iht_RGM = 4

5.42.1.68 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_Br2_a = 0

**5.42.1.69 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_Br2Clm_a
= 0**

5.42.1.70 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_Br2m_a = 0

5.42.1.71 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_Br_a** = 0

5.42.1.72 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_BrCl2m_a** = 0

5.42.1.73 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_BrCl_a** = 0

5.42.1.74 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_BrHgOBr-_a** = 0

5.42.1.75 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_Brm_a** = 0

5.42.1.76 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_BrOHm_a** = 0

5.42.1.77 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_BrOm_a** = 0

5.42.1.78 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_C2H5O2_a** = 0

5.42.1.79 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_CH2OHSO3m_a** = 0

5.42.1.80 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_CH3CHO_a** = 0

5.42.1.81 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_CH3CO2H-_a** = 0

5.42.1.82 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_CH3COCH3_a** = 0

5.42.1.83 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_CH3COOm_a** = 0

5.42.1.84 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_CH3O2_a** = 0

5.42.1.85 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_CH3OH_a** = 0

5.42.1.86 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_CH3OOH-_a** = 0

5.42.1.87 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_CH3SO3m_a** = 0

5.42.1.88   INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_Cl2_a = 0

5.42.1.89   INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_Cl2m_a = 0

5.42.1.90   INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_Cl_a = 0

5.42.1.91   INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_ClHgBr_a = 0

**5.42.1.92   INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_ClHgOBr_-
a = 0**

5.42.1.93   INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_Clm_a = 0

5.42.1.94   INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_ClOHm_a = 0

5.42.1.95   INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_ClOm_a = 0

5.42.1.96   INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_CO2_a = 0

5.42.1.97   INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_CO3m_a = 0

5.42.1.98   INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_D1O_a = 0

5.42.1.99   INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_D2O_a = 0

5.42.1.100   INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_DA_a = 0

5.42.1.101   INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_DAHp_a = 0

5.42.1.102   INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_DAm_a = 0

5.42.1.103   INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_DGtAi_a = 0

5.42.1.104   INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_DGtAs_a = 0

5.42.1.105   INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_DMS_a = 0

5.42.1.106   INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_DMSO_a = 0

5.42.1.107 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_H2O2_a = 0

5.42.1.108 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_H2O_a = 0

5.42.1.109 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_H2SO4_a = 0

5.42.1.110 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HBr_a = 0

5.42.1.111 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HCHO_a = 0

5.42.1.112 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HCl_a = 0

5.42.1.113 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HCO3m_a = 0

5.42.1.114 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HCOOH_-a = 0

5.42.1.115 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HCOOm-_a = 0

5.42.1.116 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_Hg_a = 0

5.42.1.117 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HgBr2_a = 0

5.42.1.118 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HgBr3m-_a = 0

5.42.1.119 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_Hg-Br4mm_a = 0

5.42.1.120 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HgBrp_a = 0

5.42.1.121 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HgCl2_a = 0

5.42.1.122 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HgCl3m_-a = 0

5.42.1.123 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_Hg-Cl4mm_a = 0

5.42.1.124 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HgClp_a = 0

5.42.1.125 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HgO_a = 0

5.42.1.126 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HgOH_a = 0

5.42.1.127 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HgOHCl-_a = 0

5.42.1.128 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HgOHOH-_a = 0

5.42.1.129 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HgOHp_a = 0

5.42.1.130 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_Hgp_a = 0

5.42.1.131 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_Hgpp_a = 0

5.42.1.132 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HgS-O32mm_a = 0

5.42.1.133 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HgSO3_a = 0

5.42.1.134 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HI_a = 0

5.42.1.135 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HIO3_a = 0

5.42.1.136 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HNO3_a = 0

5.42.1.137 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HNO4_a = 0

5.42.1.138 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HO2_a = 0

5.42.1.139 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HOBr_a = 0

5.42.1.140 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HOCl_a = 0

5.42.1.141 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_HOI_a = 0

5.42.1.142 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_HONO_a = 0**

5.42.1.143 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_Hp_a = 0**

5.42.1.144 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_HSO3m_a = 0**

5.42.1.145 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_HSO4m_a = 0**

5.42.1.146 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_HSO5m_a = 0**

5.42.1.147 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_I2_a = 0**

5.42.1.148 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_IBr2m_a = 0**

5.42.1.149 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_IBr_a = 0**

5.42.1.150 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_ICl2m_a = 0**

5.42.1.151 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_ICl_a = 0**

5.42.1.152 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_IClBrm_a = 0**

5.42.1.153 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_Im_a = 0**

5.42.1.154 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_IO2m_a = 0**

5.42.1.155 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_IO3m_a = 0**

5.42.1.156 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_IO_a = 0**

5.42.1.157 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_N2O5_a = 0**

5.42.1.158 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_Nap_a = 0**

5.42.1.159 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_NH3_a = 0**

5.42.1.160 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_NH4p_a = 0**

5.42.1.161 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_NO2_a = 0

5.42.1.162 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_NO2m_a = 0

5.42.1.163 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_NO3_a = 0

5.42.1.164 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_NO3m_a = 0

5.42.1.165 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_NO4m_a = 0

5.42.1.166 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_NO_a = 0

5.42.1.167 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_O2_a = 0

5.42.1.168 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_O2m_a = 0

5.42.1.169 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_O3_a = 0

5.42.1.170 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_OH_a = 0

5.42.1.171 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_OHm_a = 0

5.42.1.172 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_PAN_a = 0

5.42.1.173 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_PROD1_a = 0

5.42.1.174 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_PROD2_a = 0

5.42.1.175 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_SO2_a = 0

5.42.1.176 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_SO3m_a = 0

5.42.1.177 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_SO3mm_-a = 0

5.42.1.178 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_SO4m_a = 0

5.42.1.179 INTEGER, dimension(apn), public messy_mecca_kpp_Global::ind_SO4mm_-a = 0

5.42.1.180 INTEGER, dimension(apn), public **messy_mecca_kpp_Global::ind_SO5m_a = 0**

5.42.1.181 CHARACTER(LEN=∗), parameter, public **messy_mecca_kpp_Global::integr = 'rosenbrock_posdef'**

5.42.1.182 REAL **messy_mecca_kpp_Global::J_ACETOL**

5.42.1.183 REAL **messy_mecca_kpp_Global::J_IC3H7NO3**

5.42.1.184 REAL(dp), dimension(ip_max) **messy_mecca_kpp_Global::jx = 0.**

5.42.1.185 REAL **messy_mecca_kpp_Global::k0_NO_HO2**

5.42.1.186 REAL **messy_mecca_kpp_Global::k1d_NO_HO2**

5.42.1.187 REAL **messy_mecca_kpp_Global::k1w_NO_HO2**

5.42.1.188 REAL **messy_mecca_kpp_Global::k2d_NO_HO2**

5.42.1.189 REAL **messy_mecca_kpp_Global::k2w_NO_HO2**

5.42.1.190 REAL(kind=dp), parameter **messy_mecca_kpp_Global::k_adp = 0.45E-11**

5.42.1.191 REAL(kind=dp), parameter **messy_mecca_kpp_Global::k_ads = 3.0E-11**

5.42.1.192 REAL(kind=dp), parameter **messy_mecca_kpp_Global::k_adsecprim = 3.0E-11**

5.42.1.193 REAL(kind=dp), parameter **messy_mecca_kpp_Global::k_adt = 5.5E-11**

5.42.1.194 REAL(kind=dp), parameter **messy_mecca_kpp_Global::k_adtertprim = 5.7E-11**

5.42.1.195 REAL **messy_mecca_kpp_Global::k_BrO_NO2**

5.42.1.196 REAL **messy_mecca_kpp_Global::k_CH3CO3_NO2**

5.42.1.197 REAL **messy_mecca_kpp_Global::k_CH3O2**

5.42.1.198 REAL **messy_mecca_kpp_Global::k_CH3OOH_OH**

5.42.1.199 REAL **messy_mecca_kpp_Global::k_ClO_ClO**

5.42.1.200 REAL **messy_mecca_kpp_Global::k_DMS_OH**

5.42.1.201 REAL(dp), dimension(apn,nspec) **messy_mecca_kpp_Global::k_exb = 0.**

5.42.1.202 REAL(dp), dimension(apn,nspec) messy_mecca_kpp_Global::k_exf = 0.

5.42.1.203 REAL(dp) messy_mecca_kpp_Global::k_exf_BrNO3 = 0.

5.42.1.204 REAL(dp) messy_mecca_kpp_Global::k_exf_ClNO3 = 0.

5.42.1.205 REAL(dp) messy_mecca_kpp_Global::k_exf_N2O5 = 0.

5.42.1.206 REAL messy_mecca_kpp_Global::k_G4138

5.42.1.207 REAL messy_mecca_kpp_Global::k_G9408

5.42.1.208 REAL messy_mecca_kpp_Global::k_HNO3_OH

5.42.1.209 REAL messy_mecca_kpp_Global::k_HO2_HO2

5.42.1.210 REAL messy_mecca_kpp_Global::k_I_NO2

5.42.1.211 REAL messy_mecca_kpp_Global::k_NO2_CH3O2

5.42.1.212 REAL messy_mecca_kpp_Global::k_NO2_HO2

5.42.1.213 REAL messy_mecca_kpp_Global::k_NO3_NO2

5.42.1.214 REAL messy_mecca_kpp_Global::k_O3s

5.42.1.215 REAL(kind=dp), parameter messy_mecca_kpp_Global::k_p = 1.24E-13

5.42.1.216 REAL messy_mecca_kpp_Global::k_PAN_M

5.42.1.217 REAL messy_mecca_kpp_Global::k_PrO2_CH3O2

5.42.1.218 REAL messy_mecca_kpp_Global::k_PrO2_HO2

5.42.1.219 REAL messy_mecca_kpp_Global::k_PrO2_NO

5.42.1.220 REAL(kind=dp), parameter messy_mecca_kpp_Global::k_rohro = 1.6E-13

5.42.1.221 REAL(kind=dp), parameter messy_mecca_kpp_Global::k_s = 8.42E-13

5.42.1.222 REAL(kind=dp), parameter messy_mecca_kpp_Global::k_t = 1.75E-12

5.42.1.223 REAL messy_mecca_kpp_Global::KAPHO2

5.42.1.224 REAL messy_mecca_kpp_Global::KAPNO

5.42.1.225 REAL(dp) messy_mecca_kpp_Global::khet_St = 0.

5.42.1.226 REAL(dp) messy_mecca_kpp_Global::khet_Tr = 0.

5.42.1.227 REAL messy_mecca_kpp_Global::KNO3AL

5.42.1.228 CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_Global::KPP_H-OME = '/home/sander/e2/messy_d2.50s_rs/messy/tools/kpp'

5.42.1.229 CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_Global::KPP_-version = '2.2.1_rs5'

5.42.1.230 CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_Global-::kppoption = 'k'

5.42.1.231 REAL messy_mecca_kpp_Global::KRO2HO2

5.42.1.232 REAL messy_mecca_kpp_Global::KRO2NO

5.42.1.233 REAL messy_mecca_kpp_Global::KRO2NO3

5.42.1.234 REAL(dp), dimension(apn) messy_mecca_kpp_Global::lwc

5.42.1.235 INTEGER, parameter, public messy_mecca_kpp_Global::MAX_MCEXP = 1

5.42.1.236 REAL, dimension(max_mcexp) messy_mecca_kpp_Global::mcexp

5.42.1.237 CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_Global-::mecca_eqn_file = '-rw------- 1 sander sander 42671 Jun 20 14:09 mecca.eqn'

5.42.1.238 CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_Global::mecca_-eqn_file_sum = '55078 42'

5.42.1.239 CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_Global-::mecca_spc_file = '-rw-r--r-- 1 sander sander 44126 Jun 20 14:09 mecca.spc'

5.42.1.240 CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_Global::mecca_-spc_file_sum = '20767 44'

5.42.1.241 REAL(dp) messy_mecca_kpp_Global::press

5.42.1.242 REAL(dp), parameter messy_mecca_kpp_Global::RCO3_O3 = 0.10

5.42.1.243 REAL(dp), parameter messy_mecca_kpp_Global::RCO3_OH = 0.69

5.42.1.244 REAL(dp), parameter messy_mecca_kpp_Global::RCO3_OOH = 0.21

5.42.1.245 REAL(kind=dp) messy_mecca_kpp_Global::RCONST

5.42.1.246 **LOGICAL, parameter messy_mecca_kpp_Global::REQ_AEROSOL = .FALSE.**

5.42.1.247 **LOGICAL, parameter messy_mecca_kpp_Global::REQ_HET = .FALSE.**

5.42.1.248 **LOGICAL, parameter messy_mecca_kpp_Global::REQ_MCFCT = .FALSE.**

5.42.1.249 **LOGICAL, parameter messy_mecca_kpp_Global::REQ_PHOTRAT = .TRUE.**

5.42.1.250 **REAL(dp) messy_mecca_kpp_Global::RO2**

5.42.1.251 **CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_Global::rplfile = ''**

5.42.1.252 **REAL(kind=dp) messy_mecca_kpp_Global::RTOL**

5.42.1.253 **CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_Global::rxnrates = 'n'**

5.42.1.254 **REAL(kind=dp) messy_mecca_kpp_Global::STEPMAX**

5.42.1.255 **REAL(kind=dp) messy_mecca_kpp_Global::STEPMIN**

5.42.1.256 **REAL(kind=dp) messy_mecca_kpp_Global::SUN**

5.42.1.257 **CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_Global::tagdbl = 'n'**

5.42.1.258 **REAL(kind=dp) messy_mecca_kpp_Global::TEMP**

5.42.1.259 **REAL(dp) messy_mecca_kpp_Global::temp_elec**

5.42.1.260 **REAL(dp) messy_mecca_kpp_Global::temp_ion**

5.42.1.261 **REAL(kind=dp) messy_mecca_kpp_Global::TEND**

5.42.1.262 **REAL(dp), parameter messy_mecca_kpp_Global::testfac_CO2 = 1.e5_dp**

5.42.1.263 **REAL(dp), parameter messy_mecca_kpp_Global::testfac_H2O = 1.e9_dp**

5.42.1.264 **REAL(dp), parameter messy_mecca_kpp_Global::testfac_H2SO4 = 1.e7_dp**

5.42.1.265 **REAL(dp), parameter messy_mecca_kpp_Global::testfac_HBr = 1.e6_dp**

5.42.1.266 **REAL(dp), parameter messy_mecca_kpp_Global::testfac_HCl = 1.e2_dp**

5.42.1.267 **REAL(dp), parameter messy_mecca_kpp_Global::testfac_HCOOH = 1.e5_dp**

5.42.1.268 REAL(dp), parameter messy_mecca_kpp_Global::testfac_HNO3 = 1.e7_dp

5.42.1.269 REAL(dp), parameter messy_mecca_kpp_Global::testfac_HNO4 = 1.e5_dp

5.42.1.270 REAL(dp), parameter messy_mecca_kpp_Global::testfac_HO2 = 1.e5_dp

5.42.1.271 REAL(dp), parameter messy_mecca_kpp_Global::testfac_HOBr = 1.e2_dp

5.42.1.272 REAL(dp), parameter messy_mecca_kpp_Global::testfac_HOCl = 1.e2_dp

5.42.1.273 REAL(dp), parameter messy_mecca_kpp_Global::testfac_HONO = 1.e5_dp

5.42.1.274 REAL(dp), parameter messy_mecca_kpp_Global::testfac_HSO3m = 1.e9_dp

5.42.1.275 REAL(dp), parameter messy_mecca_kpp_Global::testfac_HSO4m = 1.e7_dp

5.42.1.276 REAL(dp), parameter messy_mecca_kpp_Global::testfac_IBr = 1.e2_dp

5.42.1.277 REAL(dp), parameter messy_mecca_kpp_Global::testfac_ICl = 1.e2_dp

5.42.1.278 REAL(dp), parameter messy_mecca_kpp_Global::testfac_IClBr = 1.e2_dp

5.42.1.279 REAL(dp), parameter messy_mecca_kpp_Global::testfac_NH3 = 1.e7_dp

5.42.1.280 REAL(dp), parameter messy_mecca_kpp_Global::testfac_SO2 = 1.e9_dp

5.42.1.281 REAL(kind=dp) messy_mecca_kpp_Global::TIME

5.42.1.282 CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_Global-::timestamp = 'xmecca was run on 2015-06-20 at 14:09:00 by sander on machine bromine'

5.42.1.283 REAL(kind=dp) messy_mecca_kpp_Global::TSTART

5.42.1.284 REAL(kind=dp) messy_mecca_kpp_Global::VAR

5.42.1.285 CHARACTER(LEN=∗), parameter, public messy_mecca_kpp_Global::wanted = 'Tr && G && !C && !S && !Cl && !Br && !I && !Hg'

5.42.1.286 REAL(dp), dimension(apn) messy_mecca_kpp_Global::xaer

5.42.1.287 INTEGER, public messy_mecca_kpp_Global::xnom7sulf = 1

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_mecca_kpp_-global.f90

5.43 messy mecca kpp Initialize Module Reference

Public Member Functions

- subroutine Initialize ()

5.43.1 Member Function/Subroutine Documentation

5.43.1.1 subroutine messy_mecca_kpp_Initialize::Initialize ( )

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_mecca_kpp_-
  initialize.f90

5.44 messy mecca kpp Integrator Module Reference

Public Member Functions

- subroutine INTEGRATE (TIN, TOUT, ICNTRL_U, RCNTRL_U, ISTATUS_U, RS-
  TATUS_U, IERR_U)
- subroutine Rosenbrock (N, Y, Tstart, Tend, AbsTol, RelTol, RCNTRL, ICNTRL,
  RSTATUS, ISTATUS, IERR)
- subroutine FunTemplate (T, Y, Ydot)
- subroutine JacTemplate (T, Y, Jcb)

Public Attributes

- INTEGER, parameter Nfun = 1
- INTEGER, parameter Njac = 2
- INTEGER, parameter Nstp = 3
- INTEGER, parameter Nacc = 4
- INTEGER, parameter Nrej = 5
- INTEGER, parameter Ndec = 6
- INTEGER, parameter Nsol = 7
- INTEGER, parameter Nsng = 8
- INTEGER, parameter Ntexit = 1
- INTEGER, parameter Nhexit = 2
- INTEGER, parameter Nhnew = 3
- CHARACTER(LEN=50), dimension(-8:1), parameter IERR_NAMES = (/ 'Matrix
  is repeatedly singular ', 'Step size too small ', 'No of steps exceeds maximum
  bound ', 'Improper tolerance values ', 'FacMin/FacMax/FacRej must be positive ',
  'Hmin/Hmax/Hstart must be positive ', 'Selected Rosenbrock method not imple-
  mented ', 'Improper value for maximal no of steps ', ' ', 'Success ' /)

5.44.1   Member Function/Subroutine Documentation

5.44.1.1   subroutine messy_mecca_kpp_Integrator::FunTemplate (REAL(kind=dp) *T,* REAL(kind=dp), dimension(nvar) *Y,* REAL(kind=dp), dimension(nvar) *Ydot*)

5.44.1.2   subroutine messy_mecca_kpp_Integrator::INTEGRATE (REAL(kind=dp), intent(in) *TIN,* REAL(kind=dp), intent(in) *TOUT,* INTEGER, dimension(20), intent(in), optional *ICNTRL_U,* REAL(kind=dp), dimension(20), intent(in), optional *RCNTRL_U,* INTEGER, dimension(20), intent(out), optional *ISTATUS_U,* REAL(kind=dp), dimension(20), intent(out), optional *RSTATUS_U,* INTEGER, intent(out), optional *IERR_U*)

5.44.1.3   subroutine messy_mecca_kpp_Integrator::JacTemplate (REAL(kind=dp) *T,* REAL(kind=dp), dimension(nvar) *Y,* REAL(kind=dp), dimension(lu_nonzero) *Jcb*)

5.44.1.4   subroutine messy_mecca_kpp_Integrator::Rosenbrock (INTEGER, intent(in) *N,* REAL(kind=dp), dimension(n), intent(inout) *Y,* REAL(kind=dp), intent(in) *Tstart,* REAL(kind=dp), intent(in) *Tend,* REAL(kind=dp), dimension(n), intent(in) *AbsTol,* REAL(kind=dp), dimension(n), intent(in) *RelTol,* REAL(kind=dp), dimension(20), intent(in) *RCNTRL,* INTEGER, dimension(20), intent(in) *ICNTRL,* REAL(kind=dp), dimension(20), intent(inout) *RSTATUS,* INTEGER, dimension(20), intent(inout) *ISTATUS,* INTEGER, intent(out) *IERR*)

Here is the call graph for this function:
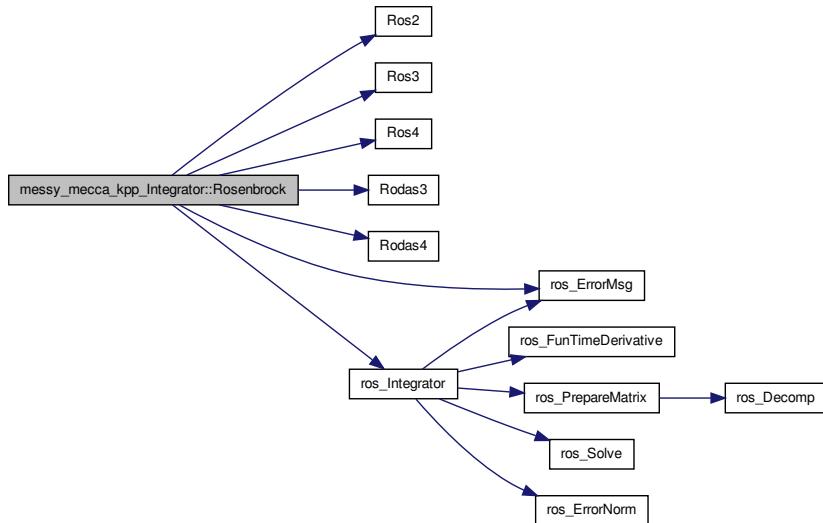
5.44.2   Member Data Documentation

5.44.2.1 **CHARACTER(LEN=50), dimension(-8:1), parameter messy_mecca_kpp_-Integrator::IERR_NAMES = (/ 'Matrix is repeatedly singular ', 'Step size too small ', 'No of steps exceeds maximum bound ', 'Improper tolerance values ', 'FacMin/FacMax/FacRej must be positive ', 'Hmin/Hmax/Hstart must be positive ', 'Selected Rosenbrock method not implemented ', 'Improper value for maximal no of steps ', ' ', 'Success ' /)**

5.44.2.2 **INTEGER, parameter messy_mecca_kpp_Integrator::Nacc = 4**

5.44.2.3 **INTEGER, parameter messy_mecca_kpp_Integrator::Ndec = 6**

5.44.2.4 **INTEGER, parameter messy_mecca_kpp_Integrator::Nfun = 1**

5.44.2.5 **INTEGER, parameter messy_mecca_kpp_Integrator::Nhexit = 2**

5.44.2.6 **INTEGER, parameter messy_mecca_kpp_Integrator::Nhnew = 3**

5.44.2.7 **INTEGER, parameter messy_mecca_kpp_Integrator::Njac = 2**

5.44.2.8 **INTEGER, parameter messy_mecca_kpp_Integrator::Nrej = 5**

5.44.2.9 **INTEGER, parameter messy_mecca_kpp_Integrator::Nsng = 8**

5.44.2.10 **INTEGER, parameter messy_mecca_kpp_Integrator::Nsol = 7**

5.44.2.11 **INTEGER, parameter messy_mecca_kpp_Integrator::Nstp = 3**

5.44.2.12 **INTEGER, parameter messy_mecca_kpp_Integrator::Ntexit = 1**

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_mecca_kpp_-integrator.f90

5.45 messy_mecca_kpp_Jacobian Module Reference

Public Member Functions

- subroutine Jac_SP (V, F, RCT, JVS)
- subroutine Jac_SP_Vec (JVS, UV, JUV)
- subroutine JacTR_SP_Vec (JVS, UV, JTUV)

5.45.1 Member Function/Subroutine Documentation

5.45.1.1 **subroutine messy_mecca_kpp_Jacobian::Jac_SP (REAL(kind=dp), dimension(nvar)** *V,* **REAL(kind=dp), dimension(nfix)** *F,* **REAL(kind=dp), dimension(nreact)** *RCT,* **REAL(kind=dp), dimension(lu_nonzero)** *JVS* **)**

5.45.1.2 **subroutine messy_mecca_kpp_Jacobian::Jac_SP_Vec (REAL(kind=dp), dimension(lu_nonzero)** *JVS,* **REAL(kind=dp), dimension(nvar)** *UV,* **REAL(kind=dp), dimension(nvar)** *JUV* **)**

5.45.1.3 **subroutine messy_mecca_kpp_Jacobian::JacTR_SP_Vec (REAL(kind=dp), dimension(lu_nonzero)** *JVS,* **REAL(kind=dp), dimension(nvar)** *UV,* **REAL(kind=dp), dimension(nvar)** *JTUV* **)**

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_mecca_kpp_-jacobian.f90

5.46 messy_mecca_kpp_JacobianSP Module Reference

Public Attributes

- INTEGER, dimension(360), parameter LU_IROW_0 = (/ 1, 1, 1, 2, 2, 2, 2, 2, 2, 3, 3, 4, 4, 5, 5, 5, 6, 6, 6, 7, 7, 7, 8, 8, 8, 9, 9, 9, 9, 9, 9, 9, 9, 10, 10, 10, 11, 11, 11, 11, 12, 12, 12, 12, 12, 13, 13, 13, 13, 13, 14, 14, 14, 14, 15, 15, 15, 15, 16, 16, 16, 16, 17, 17, 17, 17, 17, 18, 18, 18, 18, 19, 19, 19, 19, 19, 19, 20, 20, 20, 20, 21, 21, 21, 21, 22, 22, 22, 22, 22, 23, 23, 23, 23, 23, 23, 23, 24, 24, 24, 24, 24, 24, 25, 25, 25, 25, 25, 25, 25, 26, 26, 26, 26, 26, 26, 26, 27, 27, 27, 27, 27, 27, 27, 27, 27, 28, 28, 28, 28, 28, 28, 29, 29, 29, 29, 29, 29, 29, 29, 29, 29, 29, 30, 30, 30, 30, 30, 30, 30, 30, 30, 30, 31, 31, 31, 31, 31, 31, 31, 31, 31, 31, 31, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 33, 33, 33, 33, 33, 33, 33, 33, 33, 33, 33, 33, 33, 33, 33, 33, 33, 33, 34, 34, 34, 34, 34, 34, 34, 34, 34, 34, 34, 34, 34, 34, 34, 34, 34, 35, 35, 35, 35, 35, 35, 35, 35, 35, 35, 35, 35, 35, 35, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 37, 37, 37, 37, 37, 37, 37, 37, 37, 37, 37, 37, 37, 37, 37, 37, 37, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 39, 39, 39, 39, 39, 39, 39, 39, 39, 39, 39, 39, 39, 39, 39, 39, 39, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 41, 41, 41 /)
- INTEGER, dimension(48), parameter LU_IROW_1 = (/ 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 42, 42, 42, 42, 42, 42, 42, 42, 42, 42, 42, 42, 42 /)
- INTEGER, dimension(408), parameter LU_IROW = (/ LU_IROW_0, LU_IROW_1 /)
- INTEGER, dimension(360), parameter LU_ICOL_0 = (/ 1, 26, 40, 2, 18, 32, 36, 39, 42, 3, 38, 4, 38, 5, 33, 40, 6, 36, 38, 7, 39, 41, 8, 35, 41, 9, 12, 25, 28, 30, 32, 35, 38, 10, 31, 38, 11, 13, 27, 38, 12, 28, 30, 32, 38, 11, 13, 22, 27, 38, 14, 36,

38, 40, 15, 36, 38, 42, 16, 34, 37, 38, 17, 32, 33, 38, 40, 18, 38, 39, 42, 19, 27,
34, 37, 38, 40, 20, 38, 40, 42, 21, 31, 38, 40, 22, 26, 35, 36, 40, 7, 23, 31, 36, 38,
39, 41, 24, 34, 37, 38, 40, 42, 25, 28, 29, 30, 32, 33, 38, 39, 3, 22, 26, 34, 35, 36,
38, 40, 13, 22, 26, 27, 34, 35, 36, 37, 38, 40, 4, 28, 30, 35, 37, 38, 10, 21, 23, 29,
31, 33, 34, 36, 38, 39, 40, 41, 8, 28, 30, 33, 35, 37, 38, 40, 41, 42, 21, 23, 31, 32,
33, 34, 36, 38, 39, 40, 41, 15, 16, 18, 20, 24, 25, 28, 29, 30, 31, 32, 33, 34, 35,
36, 37, 38, 39, 40, 41, 42, 5, 14, 17, 20, 21, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40,
41, 42, 13, 16, 19, 22, 26, 27, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 22,
26, 28, 30, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 6, 9, 10, 12, 14, 18, 21, 23, 25,
26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 15, 16, 18, 20,
24, 28, 30, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 3, 4, 6, 8, 10, 11, 12, 13, 14, 15,
16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36,
37, 38, 39, 40, 41, 42, 7, 18, 25, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40,
41, 42, 5, 14, 17, 19, 20, 21, 24, 26, 27, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41,
42, 3, 4, 6 /)

- INTEGER, dimension(48), parameter LU_ICOL_1 = (/ 7, 8, 10, 11, 12, 13, 14,
  15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36,
  37, 38, 39, 40, 41, 42, 15, 20, 28, 30, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42 /)

- INTEGER, dimension(408), parameter LU_ICOL = (/ LU_ICOL_0, LU_ICOL_1 /)

- INTEGER, dimension(43), parameter LU_CROW = (/ 1, 4, 10, 12, 14, 17,
  20, 23, 26, 34, 37, 41, 46, 51, 55, 59, 63, 68, 72, 78, 82, 86, 91, 98,
  104,112,120,130,136,148,158,169,190,207,225,239, 265,282,319,337,358,395,409
  /)

- INTEGER, dimension(43), parameter LU_DIAG = (/ 1, 4, 10, 12, 14, 17,
  20, 23, 26, 34, 37, 41, 47, 51, 55, 59, 63, 68, 72, 78, 82, 86, 92, 98,
  104,114,123,131,139,150,160,179,197,216,231,258, 276,314,333,355,393,408,409
  /)

5.46.1 Member Data Documentation

5.46.1.1 INTEGER, dimension(43), parameter **messy_mecca_kpp_JacobianSP::LU_CR-OW** = (/ 1, 4, 10, 12, 14, 17, 20, 23, 26, 34, 37, 41, 46, 51, 55, 59, 63, 68, 72, 78, 82, 86, 91, 98, 104,112,120,130,136,148,158,169,190,207,225,239, 265,282,319,337,358,395,409 /)

5.46.1.2 INTEGER, dimension(43), parameter **messy_mecca_kpp_JacobianSP::LU_DIA-G** = (/ 1, 4, 10, 12, 14, 17, 20, 23, 26, 34, 37, 41, 47, 51, 55, 59, 63, 68, 72, 78, 82, 86, 92, 98, 104,114,123,131,139,150,160,179,197,216,231,258, 276,314,333,355,393,408,409 /)

5.46.1.3 INTEGER, dimension(408), parameter **messy_mecca_kpp-_JacobianSP::LU_ICOL** = (/ LU_ICOL_0, LU_ICOL_1 /)

5.46.1.4 **INTEGER, dimension(360), parameter messy_mecca_kpp_JacobianSP::LU_IC-OL_0** = (/ 1, 26, 40, 2, 18, 32, 36, 39, 42, 3, 38, 4, 38, 5, 33, 40, 6, 36, 38, 7, 39, 41, 8, 35, 41, 9, 12, 25, 28, 30, 32, 35, 38, 10, 31, 38, 11, 13, 27, 38, 12, 28, 30, 32, 38, 11, 13, 22, 27, 38, 14, 36, 38, 40, 15, 36, 38, 42, 16, 34, 37, 38, 17, 32, 33, 38, 40, 18, 38, 39, 42, 19, 27, 34, 37, 38, 40, 20, 38, 40, 42, 21, 31, 38, 40, 22, 26, 35, 36, 40, 7, 23, 31, 36, 38, 39, 41, 24, 34, 37, 38, 40, 42, 25, 28, 29, 30, 32, 33, 38, 39, 3, 22, 26, 34, 35, 36, 38, 40, 13, 22, 26, 27, 34, 35, 36, 37, 38, 40, 4, 28, 30, 35, 37, 38, 10, 21, 23, 29, 31, 33, 34, 36, 38, 39, 40, 41, 8, 28, 30, 33, 35, 37, 38, 40, 41, 42, 21, 23, 31, 32, 33, 34, 36, 38, 39, 40, 41, 15, 16, 18, 20, 24, 25, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 5, 14, 17, 20, 21, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 13, 16, 19, 22, 26, 27, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 22, 26, 28, 30, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 6, 9, 10, 12, 14, 18, 21, 23, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 15, 16, 18, 20, 24, 28, 30, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 3, 4, 6, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 7, 18, 25, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 5, 14, 17, 19, 20, 21, 24, 26, 27, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 3, 4, 6 /)

5.46.1.5 **INTEGER, dimension(48), parameter messy_mecca_kpp_JacobianSP::LU_ICO-L_1** = (/ 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 15, 20, 28, 30, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42 /)

5.46.1.6 **INTEGER, dimension(408), parameter messy_mecca_kpp_-JacobianSP::LU_IROW = (/ LU_IROW_0, LU_IROW_1 /)**

5.46.1.7 **INTEGER, dimension(360), parameter messy_mecca_kpp_JacobianSP::LU_IR-OW_0** = (/ 1, 1, 1, 2, 2, 2, 2, 2, 2, 3, 3, 4, 4, 5, 5, 5, 6, 6, 6, 7, 7, 7, 8, 8, 8, 9, 9, 9, 9, 9, 9, 9, 9, 10, 10, 10, 11, 11, 11, 11, 12, 12, 12, 12, 12, 13, 13, 13, 13, 13, 14, 14, 14, 14, 15, 15, 15, 15, 16, 16, 16, 16, 17, 17, 17, 17, 17, 18, 18, 18, 18, 19, 19, 19, 19, 19, 19, 20, 20, 20, 20, 21, 21, 21, 21, 22, 22, 22, 22, 22, 23, 23, 23, 23, 23, 23, 23, 24, 24, 24, 24, 24, 24, 25, 25, 25, 25, 25, 25, 25, 26, 26, 26, 26, 26, 26, 26, 27, 27, 27, 27, 27, 27, 27, 27, 27, 28, 28, 28, 28, 28, 28, 29, 29, 29, 29, 29, 29, 29, 29, 29, 29, 29, 30, 30, 30, 30, 30, 30, 30, 30, 30, 30, 31, 31, 31, 31, 31, 31, 31, 31, 31, 31, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 33, 33, 33, 33, 33, 33, 33, 33, 33, 33, 33, 33, 33, 33, 33, 33, 34, 34, 34, 34, 34, 34, 34, 34, 34, 34, 34, 34, 34, 34, 34, 35, 35, 35, 35, 35, 35, 35, 35, 35, 35, 35, 35, 35, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 36, 37, 37, 37, 37, 37, 37, 37, 37, 37, 37, 37, 37, 37, 37, 37, 37, 37, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 38, 39, 39, 39, 39, 39, 39, 39, 39, 39, 39, 39, 39, 39, 39, 39, 39, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 41, 41, 41 /)

5.46.1.8 **INTEGER, dimension(48), parameter messy_mecca_kpp_JacobianSP::LU_IRO-W_1** = (/ 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 41, 42, 42, 42, 42, 42, 42, 42, 42, 42, 42, 42, 42, 42, 42, 42, 42 /)

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_mecca_kpp_-jacobiansp.f90

5.47 messy_mecca_kpp_LinearAlgebra Module Reference

Public Member Functions

- subroutine KppDecomp (JVS, IER)
- subroutine KppDecompCmplx (JVS, IER)
- subroutine KppDecompCmplxR (JVSR, JVSI, IER)
- subroutine KppSolveIndirect (JVS, X)
- subroutine KppSolveTRIndirect (JVS, X)
- subroutine KppSolveCmplx (JVS, X)
- subroutine KppSolveCmplxR (JVSR, JVSI, XR, XI)
- subroutine KppSolveTRCmplx (JVS, X)
- subroutine KppSolveTRCmplxR (JVSR, JVSI, XR, XI)
- subroutine KppSolve (JVS, X)
- subroutine KppSolveTR (JVS, X, XX)
- subroutine WCOPY (N, X, incX, Y, incY)
- subroutine WAXPY (N, Alpha, X, incX, Y, incY)
- subroutine WSCAL (N, Alpha, X, incX)
- REAL(kind=dp) function WLAMCH (C)
- subroutine WLAMCH_ADD (A, B, Suma)
- subroutine SET2ZERO (N, Y)
- REAL(kind=dp) function WDOT (N, DX, incX, DY, incY)
- subroutine WADD (N, X, Y, Z)
- subroutine WGEFA (N, A, Ipvt, info)
- subroutine WGESL (Trans, N, A, Ipvt, b)

5.47.1 Member Function/Subroutine Documentation

5.47.1.1 subroutine messy_mecca_kpp_LinearAlgebra::KppDecomp (REAL(kind=dp), dimension(lu_nonzero) *JVS,* INTEGER *IER*)

5.47.1.2 subroutine messy_mecca_kpp_LinearAlgebra::KppDecompCmplx (DOUBLE COMPLEX, dimension(lu_nonzero) *JVS,* INTEGER *IER*)

5.47.1.3 subroutine messy_mecca_kpp_LinearAlgebra::KppDecompCmplxR (REAL(kind=dp), dimension(lu_nonzero) *JVSR,* REAL(kind=dp), dimension(lu_nonzero) *JVSI,* INTEGER *IER*)

5.47.1.4 subroutine messy_mecca_kpp_LinearAlgebra::KppSolve (REAL(kind=dp), dimension(lu_nonzero) *JVS,* REAL(kind=dp), dimension(nvar) *X*)

5.47.1.5   subroutine **messy_mecca_kpp_LinearAlgebra::KppSolveCmplx** (DOUBLE COMPLEX, dimension(lu_nonzero) *JVS,* DOUBLE COMPLEX, dimension(nvar) *X*)

5.47.1.6   subroutine **messy_mecca_kpp_LinearAlgebra::KppSolveCmplxR** (REAL(kind=dp), dimension(lu_nonzero) *JVSR,* REAL(kind=dp), dimension(lu_nonzero) *JVSI,* REAL(kind=dp), dimension(nvar) *XR,* REAL(kind=dp), dimension(nvar) *XI*)

5.47.1.7   subroutine **messy_mecca_kpp_LinearAlgebra::KppSolveIndirect** (REAL(kind=dp), dimension(lu_nonzero) *JVS,* REAL(kind=dp), dimension(nvar) *X*)

5.47.1.8   subroutine **messy_mecca_kpp_LinearAlgebra::KppSolveTR** (REAL(kind=dp), dimension(lu_nonzero) *JVS,* REAL(kind=dp), dimension(nvar) *X,* REAL(kind=dp), dimension(nvar) *XX*)

5.47.1.9   subroutine **messy_mecca_kpp_LinearAlgebra::KppSolveTRCmplx** (DOUBLE COMPLEX, dimension(lu_nonzero) *JVS,* DOUBLE COMPLEX, dimension(nvar) *X*)

5.47.1.10   subroutine **messy_mecca_kpp_LinearAlgebra::KppSolveTRCmplxR** (REAL(kind=dp), dimension(lu_nonzero) *JVSR,* REAL(kind=dp), dimension(lu_nonzero) *JVSI,* REAL(kind=dp), dimension(nvar) *XR,* REAL(kind=dp), dimension(nvar) *XI*)

5.47.1.11   subroutine **messy_mecca_kpp_LinearAlgebra::KppSolveTRIndirect** (REAL(kind=dp), dimension(lu_nonzero) *JVS,* REAL(kind=dp), dimension(nvar) *X*)

5.47.1.12   subroutine **messy_mecca_kpp_LinearAlgebra::SET2ZERO** (INTEGER *N,* REAL(kind=dp), dimension(n) *Y*)

5.47.1.13   subroutine **messy_mecca_kpp_LinearAlgebra::WADD** (INTEGER *N,* REAL(kind=dp), dimension(n) *X,* REAL(kind=dp), dimension(n) *Y,* REAL(kind=dp), dimension(n) *Z*)

5.47.1.14   subroutine **messy_mecca_kpp_LinearAlgebra::WAXPY** (INTEGER *N,* REAL(kind=dp) *Alpha,* REAL(kind=dp), dimension(n) *X,* INTEGER *incX,* REAL(kind=dp), dimension(n) *Y,* INTEGER *incY*)

5.47.1.15   subroutine **messy_mecca_kpp_LinearAlgebra::WCOPY** (INTEGER *N,* REAL(kind=dp), dimension(n) *X,* INTEGER *incX,* REAL(kind=dp), dimension(n) *Y,* INTEGER *incY*)

5.47.1.16   REAL(kind=dp) function **messy_mecca_kpp_LinearAlgebra::WDOT** (INTEGER *N,* REAL(kind=dp), dimension(n) *DX,* INTEGER *incX,* REAL(kind=dp), dimension(n) *DY,* INTEGER *incY*)

5.47.1.17   subroutine **messy_mecca_kpp_LinearAlgebra::WGEFA** (INTEGER *N,* REAL(kind=dp), dimension(n,n) *A,* INTEGER, dimension(n) *lpvt,* INTEGER *info*)

5.47.1.18 **subroutine messy_mecca_kpp_LinearAlgebra::WGESL (** CHARACTER *Trans,* INTEGER *N,* REAL(kind=dp), dimension(n,n) *A,* INTEGER, dimension(n) *Ipvt,* REAL(kind=dp), dimension(n) *b* **)**

5.47.1.19 **REAL(kind=dp) function messy_mecca_kpp_LinearAlgebra::WLAMCH (** CHARACTER *C* **)**

5.47.1.20 **subroutine messy_mecca_kpp_LinearAlgebra::WLAMCH_ADD (** REAL(kind=dp) *A,* REAL(kind=dp) *B,* REAL(kind=dp) *Suma* **)**

5.47.1.21 **subroutine messy_mecca_kpp_LinearAlgebra::WSCAL (** INTEGER *N,* REAL(kind=dp) *Alpha,* REAL(kind=dp), dimension(n) *X,* INTEGER *incX* **)**

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_mecca_kpp_-
  linearalgebra.f90

5.48 messy_mecca_kpp_Monitor Module Reference

Public Attributes

- CHARACTER(LEN=32), dimension(45), parameter SPC_NAMES = (/ 'N2O ','-
  LCARBON ','NH3 ', 'CH4 ','N2O5 ','H2O2 ', 'H2OH2O ','O1D ','H ', 'HOCH2OH
  ','NH2OH ','H2 ', 'NHOH ','HNO4 ','CH3OOH ', 'CH3ONO ','HNO3 ','CH3OH ', '-
  HONO ','CH3O2NO2 ','HOCH2O2NO2 ', 'NH2O ','HOCH2OOH ','CH3NO3 ', 'CO
  ','NH2 ','HNO ', 'CH3 ','HCOOH ','O3P ', 'HOCH2O2 ','HCHO ','NO3 ', 'NO ','O3
  ','HO2 ', 'CH3O ','OH ','CH2OO ', 'NO2 ','H2O ','CH3O2 ', 'O2 ','N2 ','CO2 ' /)
- INTEGER, dimension(1) LOOKAT
- INTEGER, dimension(1) MONITOR
- CHARACTER(LEN=32), dimension(1) SMASS
- CHARACTER(LEN=100), dimension(30), parameter EQN_NAMES_0 = (/ ' O1D
  + O2 --> O3P + O2 ', ' O3P + O2 --> O3 ', ' H + O2 --> HO2 ', ' O3 + OH -->
  HO2 + O2 ', ' H2 + OH --> H + H2O ', ' O3 + HO2 --> OH + 2 O2 ', ' HO2 + OH
  --> H2O + O2 ', ' 2 HO2 --> H2O2 + O2 ', ' O1D + H2O --> 2 OH ', ' H2O2 + OH
  --> HO2 + H2O ', ' 2 H2O --> H2OH2O ', ' H2OH2O --> 2 H2O ', ' O1D + N2
  --> O3P + N2 ', ' NO + O3 --> NO2 + O2 ', ' O3 + NO2 --> NO3 + O2 ', ' NO3 +
  NO --> 2 NO2 ', ' NO3 + NO2 --> N2O5 ', ' N2O5 --> NO3 + NO2 ', ' NO + OH
  --> HONO ', ' NO + HO2 --> OH + NO2 ', ' OH + NO2 --> HNO3 ', ' HO2 + NO2
  --> HNO4 ', ' NO3 + HO2 --> OH + NO2 + O2 ', ' HONO + OH --> NO2 + H2O
  ', ' HNO3 + OH --> NO3 + H2O ', ' HNO4 --> HO2 + NO2 ', ' HNO4 + OH -->
  NO2 + H2O ', ' NH3 + OH --> NH2 + H2O ', ' NH2 + O3 --> NH2O + O2 ', ' NH2
  + HO2 --> NH2O + OH ' /)
- CHARACTER(LEN=100), dimension(30), parameter EQN_NAMES_1 = (/ ' NH2
  + HO2 --> HNO + H2O ', ' NH2 + NO --> HO2 + OH + N2 ', ' NH2 + NO -->
  H2O + N2 ', ' NH2 + NO2 --> N2O + H2O ', ' NH2 + NO2 --> NH2O + NO ', '
  NH2O + O3 --> NH2 + O2 ', ' NH2O --> NHOH ', ' HNO + OH --> NO + H2O ',

' NHOH + HNO --> NH2OH + NO ', ' HNO + NO2 --> HONO + NO ', ' NHOH + OH --> HNO + H2O ', ' NH2OH + OH --> NHOH + H2O ', ' HNO + O2 --> NO + HO2 ', ' CH4 + OH --> CH3 + H2O ', ' CH3OH + OH --> 0.85 HCHO + 0.85 HO2 + 0.15 CH3O + H2O ', ' HO2 + CH3O2 --> CH3OOH + O2 ', ' HO2 + CH3O2 --> HCHO + H2O + O2 ', ' NO + CH3O2 --> CH3O + NO2 ', ' NO + CH3O2 --> CH3NO3 ', ' NO3 + CH3O2 --> CH3O + NO2 + O2 ', ' CH3O2 --> CH3O + 0.5 O2 ', ' CH3O2 --> 0.5 CH3OH + 0.5 HCHO + 0.5 O2 ', ' CH3OOH + OH --> 0.4 HCHO + 0.4 OH + H2O + 0.6 CH3O2 ', ' HCHO + OH --> CO + HO2 + H2O ', ' HCHO + NO3 --> HNO3 + CO + HO2 ', ' CO + OH --> H + CO2 ', ' HCOOH + OH --> HO2 + H2O + CO2 ', ' NO2 + CH3O2 --> CH3O2NO2 ', ' CH3O2NO2 --> NO2 + CH3O2 ', ' CH3O2NO2 + OH --> HCHO + NO3 + H2O ' /)

- CHARACTER(LEN=100), dimension(30), parameter EQN_NAMES_2 = (/ ' CH3NO3 + OH --> HCHO + NO2 + H2O ', ' CH3O --> HCHO + HO2 ', ' CH3O + NO2 --> CH3NO3 ', ' CH3O + NO2 --> HONO + HCHO ', ' NO + CH3O --> CH3ONO ', ' NO + CH3O --> HNO + HCHO ', ' O3 + CH3O2 --> CH3O + 2 O2 ', ' CH3ONO + OH --> HCHO + NO + H2O ', ' HCHO + HO2 --> HOCH2O2 ', ' HOCH2O2 --> HCHO + HO2 ', ' HOCH2O2 + HO2 --> 0.5 HOCH2OOH + 0.5 HCOOH + 0.2 HO2 + 0.2 OH + 0.3 H2O ... etc. ', ' HOCH2O2 + NO --> HCOOH + HO2 + NO2 ', ' HOCH2O2 + NO3 --> HCOOH + HO2 + NO2 ', ' HOCH2O2 --> HCOOH + HO2 ', ' HOCH2O2 --> 0.5 HOCH2OH + 0.5 HCOOH + 0.5 O2 ', ' HOCH2OOH + OH --> HOCH2O2 + H2O ', ' HOCH2OOH + OH --> HCOOH + OH + H2O ', ' HOCH2OH + OH --> HCOOH + HO2 + H2O ', ' OH + CH3O2 --> 0.2 HO2 + 0.2 CH3O + 0.8 CH2OO + 0.8 H2O ', ' CH2OO --> CO + HO2 + OH ', ' CH2OO + H2O --> HOCH2OOH ', ' H2OH2O + CH2OO --> HOCH2OOH + H2O ', ' NO + CH2OO --> HCHO + NO2 ', ' CH2OO + NO2 --> HCHO + NO3 ', ' CO + CH2OO --> HCHO + CO2 ', ' HCOOH + CH2OO --> 2 HCOOH ', ' HCHO + CH2OO --> 2 LCARBON ', ' CH3OH + CH2OO --> 2 LCARBON ', ' CH2OO + CH3O2 --> 2 LCARBON ', ' HO2 + CH2OO --> LCARBON ' /)

- CHARACTER(LEN=100), dimension(30), parameter EQN_NAMES_3 = (/ ' O3 + CH2OO --> HCHO + 2 O2 ', ' 2 CH2OO --> 2 HCHO + O2 ', ' HOCH2O2 + NO2 --> HOCH2O2NO2 ', ' HOCH2O2NO2 --> HOCH2O2 + NO2 ', 'HOCH2O2NO2 + OH --> HCOOH + NO3 + H2O ', ' CH3 + O2 --> CH3O2 ', ' CH3 + O3 --> 0.954 H + 0.954 HCHO + 0.044 CH3O + O2 ', ' CH3 + O3P --> H + 0.17 H2 + 0.17 CO + 0.83 HCHO ', ' O3 + CH3O --> CH3O2 + O2 ', ' O3P + CH3O --> 0.75 CH3 + 0.25 HCHO + 0.25 OH + 0.75 O2 ', ' O3P + CH3O2 --> CH3O + O2 ', ' O2 --> 2 O3P ', ' O3 --> O1D + O2 ', ' O3 --> O3P + O2 ', ' H2O2 --> 2 OH ', ' NO2 --> O3P + NO ', ' NO3 --> O3P + NO2 ', ' NO3 --> NO + O2 ', ' N2O5 --> NO3 + NO2 ', ' HONO --> NO + OH ', ' HNO3 --> OH + NO2 ', ' HNO4 --> 0.333 NO3 + 0.667 HO2 + 0.333 OH + 0.667 NO2 ', ' CH3OOH --> CH3O + OH ', ' HCHO --> H2 + CO ', ' HCHO --> H + CO + HO2 ', ' CH3ONO --> NO + CH3O ', ' CH3NO3 --> CH3O + NO2 ', ' CH3O2NO2 --> 0.333 NO3 + 0.333 CH3O + 0.667 NO2 + 0.667 CH3O2 ', ' HOCH2OOH --> HCOOH + HO2 + OH ', ' CH3O2 --> HCHO + OH ' /)

- CHARACTER(LEN=100), dimension(2), parameter EQN_NAMES_4 = (/ ' HCOOH --> CO + HO2 + OH ', ' HOCH2O2NO2 --> 0.333 HCOOH + 0.667 HOCH2O2 + 0.333 NO3 + 0.333 HO2 ... etc. ' /)

- CHARACTER(LEN=100), dimension(122), parameter EQN_NAMES = (/ EQN_NAMES_0, EQN_NAMES_1, EQN_NAMES_2, EQN_NAMES_3, EQN_NAMES_4 /)

- CHARACTER(LEN=32), dimension(90), parameter EQN_TAGS_0 = (/ 'G1000 ','G1001 ','G2100 ', 'G2104 ','G2105 ','G2107 ', 'G2109 ','G2110 ','G2111 ', '-G2112 ','G2117 ','G2118 ', 'G3101 ','G3103 ','G3106 ', 'G3108 ','G3109 ','G3110 ', 'G3200 ','G3201 ','G3202 ', 'G3203 ','G3204 ','G3205 ', 'G3206 ','G3207 ','G3208 ', 'G3209 ','G3210 ','G3211 ', 'G3212 ','G3213 ','G3214 ', 'G3215 ','G3216 ','G3217 ', 'G3218 ','G3219 ','G3220 ', 'G3221 ','G3222 ','G3223 ', 'G3224 ','G4101 ','G4102 ', 'G4103a ','G4103b ','G4104a ', 'G4104b ','G4105 ','G4106a ', 'G4106b ','G4107 ','-G4108 ', 'G4109 ','G4110 ','G4111 ', 'G4114 ','G4115 ','G4116 ', 'G4117 ','G4118 ','G4119a ', 'G4119b ','G4120a ','G4120b ', 'G4121 ','G4122 ','G4123 ', 'G4124 ','G4125 ','G4126 ', 'G4127 ','G4129a ','G4129b ', 'G4130 ','G4131 ','G4132 ', '-G4133 ','G4134 ','G4135 ', 'G4136 ','G4137 ','G4138 ', 'G4140 ','G4141 ','G4142 ', 'G4143 ','G4144 ','G4145 ' /)

- CHARACTER(LEN=32), dimension(32), parameter EQN_TAGS_1 = (/ 'G4146 ','G4147 ','G4148 ', 'G4149 ','G4150 ','G4151 ', 'G4152 ','G4153 ','G4154 ', 'G4155 ','G4156 ','J1000a ', 'J1001a ','J1001b ','J2101 ', 'J3101 ','J3103a ','J3103b ', '-J3104 ','J3200 ','J3201 ', 'J3202 ','J4100 ','J4101a ', 'J4101b ','J4104 ','J4105 ', 'J4106 ','J4107 ','J4108 ', 'J4109 ','J4110 ' /)

- CHARACTER(LEN=32), dimension(122), parameter EQN_TAGS = (/ EQN_TA-GS_0, EQN_TAGS_1 /)

5.48.1 Member Data Documentation

5.48.1.1 CHARACTER(LEN=100), dimension(122), parameter messy_mecca_kpp_Monitor-::EQN_NAMES = (/ EQN_NAMES_0, EQN_NAMES_1, EQN_NAMES_2, EQN_NAMES_3, EQN_NAMES_4 /)

5.48.1.2 CHARACTER(LEN=100), dimension(30), parameter messy_mecca_kpp_Monitor::-EQN_NAMES_0 = (/ ' O1D + O2 --> O3P + O2 ', ' O3P + O2 --> O3 ', ' H + O2 --> HO2 ', ' O3 + OH --> HO2 + O2 ', ' H2 + OH --> H + H2O ', ' O3 + HO2 --> OH + 2 O2 ', ' HO2 + OH --> H2O + O2 ', ' 2 HO2 --> H2O2 + O2 ', ' O1D + H2O --> 2 OH ', ' H2O2 + OH --> HO2 + H2O ', ' 2 H2O --> H2OH2O ', ' H2OH2O --> 2 H2O ', ' O1D + N2 --> O3P + N2 ', ' NO + O3 --> NO2 + O2 ', ' O3 + NO2 --> NO3 + O2 ', ' NO3 + NO --> 2 NO2 ', ' NO3 + NO2 --> N2O5 ', ' N2O5 --> NO3 + NO2 ', ' NO + OH --> HONO ', ' NO + HO2 --> OH + NO2 ', ' OH + NO2 --> HNO3 ', ' HO2 + NO2 --> HNO4 ', ' NO3 + HO2 --> OH + NO2 + O2 ', ' HONO + OH --> NO2 + H2O ', ' HNO3 + OH --> NO3 + H2O ', ' HNO4 --> HO2 + NO2 ', ' HNO4 + OH --> NO2 + H2O ', ' NH3 + OH --> NH2 + H2O ', ' NH2 + O3 --> NH2O + O2 ', ' NH2 + HO2 --> NH2O + OH ' /)

5.48.1.3 CHARACTER(LEN=100), dimension(30), parameter messy_mecca_kpp_Monitor::-EQN_NAMES_1 = (/ ' NH2 + HO2 --> HNO + H2O ', ' NH2 + NO --> HO2 + OH + N2 ', ' NH2 + NO --> H2O + N2 ', ' NH2 + NO2 --> N2O + H2O ', ' NH2 + NO2 --> NH2O + NO ', ' NH2O + O3 --> NH2 + O2 ', ' NH2O --> NHOH ', ' HNO + OH --> NO + H2O ', ' NHOH + HNO --> NH2OH + NO ', ' HNO + NO2 --> HONO + NO ', ' NHOH + OH --> HNO + H2O ', ' NH2OH + OH --> NHOH + H2O ', ' HNO + O2 --> NO + HO2 ', ' CH4 + OH --> CH3 + H2O ', ' CH3OH + OH --> 0.85 HCHO + 0.85 HO2 + 0.15 CH3O + H2O ', ' HO2 + CH3O2 --> CH3OOH + O2 ', ' HO2 + CH3O2 --> HCHO + H2O + O2 ', ' NO + CH3O2 --> CH3O + NO2 ', ' NO + CH3O2 --> CH3NO3 ', ' NO3 + CH3O2 --> CH3O + NO2 + O2 ', ' CH3O2 --> CH3O + 0.5 O2 ', ' CH3O2 --> 0.5 CH3OH + 0.5 HCHO + 0.5 O2 ', ' CH3OOH + OH --> 0.4 HCHO + 0.4 OH + H2O + 0.6 CH3O2 ', ' HCHO + OH --> CO + HO2 + H2O ', ' HCHO + NO3 --> HNO3 + CO + HO2 ', ' CO + OH --> H + CO2 ', ' HCOOH + OH --> HO2 + H2O + CO2 ', ' NO2 + CH3O2 --> CH3O2NO2 ', ' CH3O2NO2 --> NO2 + CH3O2 ', ' CH3O2NO2 + OH --> HCHO + NO3 + H2O ' /)

5.48.1.4 CHARACTER(LEN=100), dimension(30), parameter messy_mecca_kpp_Monitor::-EQN_NAMES_2 = (/ ' CH3NO3 + OH --> HCHO + NO2 + H2O ', ' CH3O --> HCHO + HO2 ', ' CH3O + NO2 --> CH3NO3 ', ' CH3O + NO2 --> HONO + HCHO ', ' NO + CH3O --> CH3ONO ', ' NO + CH3O --> HNO + HCHO ', ' O3 + CH3O2 --> CH3O + 2 O2 ', ' CH3ONO + OH --> HCHO + NO + H2O ', ' HCHO + HO2 --> HOCH2O2 ', ' HOCH2O2 --> HCHO + HO2 ', ' HOCH2O2 + HO2 --> 0.5 HOCH2OOH + 0.5 HCOOH + 0.2 HO2 + 0.2 OH + 0.3 H2O ... etc. ', ' HOCH2O2 + NO --> HCOOH + HO2 + NO2 ', ' HOCH2O2 + NO3 --> HCOOH + HO2 + NO2 ', ' HOCH2O2 --> HCOOH + HO2 ', ' HOCH2O2 --> 0.5 HOCH2OH + 0.5 HCOOH + 0.5 O2 ', ' HOCH2OOH + OH --> HOCH2O2 + H2O ', ' HOCH2OOH + OH --> HCOOH + OH + H2O ', ' HOCH2OH + OH --> HCOOH + HO2 + H2O ', ' OH + CH3O2 --> 0.2 HO2 + 0.2 CH3O + 0.8 CH2OO + 0.8 H2O ', ' CH2OO --> CO + HO2 + OH ', ' CH2OO + H2O --> HOCH2OOH ', ' H2OH2O + CH2OO --> HOCH2OOH + H2O ', ' NO + CH2OO --> HCHO + NO2 ', ' CH2OO + NO2 --> HCHO + NO3 ', ' CO + CH2OO --> HCHO + CO2 ', ' HCOOH + CH2OO --> 2 HCOOH ', ' HCHO + CH2OO --> 2 LCARBON ', ' CH3OH + CH2OO --> 2 LCARBON ', ' CH2OO + CH3O2 --> 2 LCARBON ', ' HO2 + CH2OO --> LCARBON ' /)

5.48.1.5 CHARACTER(LEN=100), dimension(30), parameter messy_mecca_kpp_Monitor::-EQN_NAMES_3 = (/ ' O3 + CH2OO --> HCHO + 2 O2 ', ' 2 CH2OO --> 2 HCHO + O2 ', ' HOCH2O2 + NO2 --> HOCH2O2NO2 ', ' HOCH2O2NO2 --> HOCH2O2 + NO2 ', 'HOCH2O2NO2 + OH --> HCOOH + NO3 + H2O ', ' CH3 + O2 --> CH3O2 ', ' CH3 + O3 --> 0.954 H + 0.954 HCHO + 0.044 CH3O + O2 ', ' CH3 + O3P --> H + 0.17 H2 + 0.17 CO + 0.83 HCHO ', ' O3 + CH3O --> CH3O2 + O2 ', ' O3P + CH3O --> 0.75 CH3 + 0.25 HCHO + 0.25 OH + 0.75 O2 ', ' O3P + CH3O2 --> CH3O + O2 ', ' O2 --> 2 O3P ', ' O3 --> O1D + O2 ', ' O3 --> O3P + O2 ', ' H2O2 --> 2 OH ', ' NO2 --> O3P + NO ', ' NO3 --> O3P + NO2 ', ' NO3 --> NO + O2 ', ' N2O5 --> NO3 + NO2 ', ' HONO --> NO + OH ', ' HNO3 --> OH + NO2 ', ' HNO4 --> 0.333 NO3 + 0.667 HO2 + 0.333 OH + 0.667 NO2 ', ' CH3OOH --> CH3O + OH ', ' HCHO --> H2 + CO ', ' HCHO --> H + CO + HO2 ', ' CH3ONO --> NO + CH3O ', ' CH3NO3 --> CH3O + NO2 ', ' CH3O2NO2 --> 0.333 NO3 + 0.333 CH3O + 0.667 NO2 + 0.667 CH3O2 ', ' HOCH2OOH --> HCOOH + HO2 + OH ', ' CH3O2 --> HCHO + OH ' /)

5.48.1.6 CHARACTER(LEN=100), dimension(2), parameter messy_mecca_kpp_Monitor::-EQN_NAMES_4 = (/ ' HCOOH --> CO + HO2 + OH ', ' HOCH2O2NO2 --> 0.333 HCOOH + 0.667 HOCH2O2 + 0.333 NO3 + 0.333 HO2 ... etc. ' /)

5.48.1.7 CHARACTER(LEN=32), dimension(122), parameter messy_mecca_-kpp_Monitor::EQN_TAGS = (/ EQN_TAGS_0, EQN_TAGS_1 /)

5.48.1.8 CHARACTER(LEN=32), dimension(90), parameter messy_mecca_kpp_Monitor-::EQN_TAGS_0 = (/ 'G1000 ','G1001 ','G2100 ', 'G2104 ','G2105 ','G2107 ', 'G2109 ','G2110 ','G2111 ', 'G2112 ','G2117 ','G2118 ', 'G3101 ','G3103 ','G3106 ', 'G3108 ','G3109 ','G3110 ', 'G3200 ','G3201 ','G3202 ', 'G3203 ','G3204 ','G3205 ', 'G3206 ','G3207 ','G3208 ', 'G3209 ','G3210 ','G3211 ', 'G3212 ','G3213 ','G3214 ', 'G3215 ','G3216 ','G3217 ', 'G3218 ','G3219 ','G3220 ', 'G3221 ','G3222 ','G3223 ', 'G3224 ','G4101 ','G4102 ', 'G4103a ','G4103b ','G4104a ', 'G4104b ','G4105 ','G4106a ', 'G4106b ','G4107 ','G4108 ', 'G4109 ','G4110 ','G4111 ', 'G4114 ','G4115 ','G4116 ', 'G4117 ','G4118 ','G4119a ', 'G4119b ','G4120a ','G4120b ', 'G4121 ','G4122 ','G4123 ', 'G4124 ','G4125 ','G4126 ', 'G4127 ','G4129a ','G4129b ', 'G4130 ','G4131 ','G4132 ', 'G4133 ','G4134 ','G4135 ', 'G4136 ','G4137 ','G4138 ', 'G4140 ','G4141 ','G4142 ', 'G4143 ','G4144 ','G4145 ' /)

5.48.1.9 CHARACTER(LEN=32), dimension(32), parameter messy_mecca_kpp_Monitor-::EQN_TAGS_1 = (/ 'G4146 ','G4147 ','G4148 ', 'G4149 ','G4150 ','G4151 ', 'G4152 ','G4153 ','G4154 ', 'G4155 ','G4156 ','J1000a ', 'J1001a ','J1001b ','J2101 ', 'J3101 ','J3103a ','J3103b ', 'J3104 ','J3200 ','J3201 ', 'J3202 ','J4100 ','J4101a ', 'J4101b ','J4104 ','J4105 ', 'J4106 ','J4107 ','J4108 ', 'J4109 ','J4110 ' /)

5.48.1.10 INTEGER, dimension(1) messy_mecca_kpp_Monitor::LOOKAT

5.48.1.11 INTEGER, dimension(1) messy_mecca_kpp_Monitor::MONITOR

5.48.1.12 CHARACTER(LEN=32), dimension(1) messy_mecca_kpp_Monitor::SMASS

5.48.1.13 CHARACTER(LEN=32), dimension(45), parameter messy_mecca_kpp_Monitor-::SPC_NAMES = (/ 'N2O ','LCARBON ','NH3 ', 'CH4 ','N2O5 ','H2O2 ', 'H2OH2O ','O1D ','H ', 'HOCH2OH ','NH2OH ','H2 ', 'NHOH ','HNO4 ','CH3OOH ', 'CH3ONO ','HNO3 ','CH3OH ', 'HONO ','CH3O2NO2 ','HOCH2O2NO2 ', 'NH2O ','HOCH2OOH ','CH3NO3 ', 'CO ','NH2 ','HNO ', 'CH3 ','HCOOH ','O3P ', 'HOCH2O2 ','HCHO ','NO3 ', 'NO ','O3 ','HO2 ', 'CH3O ','OH ','CH2OO ', 'NO2 ','H2O ','CH3O2 ', 'O2 ','N2 ','CO2 ' /)

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_mecca_kpp_-monitor.f90

5.49 messy_mecca_kpp_Parameters Module Reference

Public Attributes

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- INTEGER, parameter NVARACT = 40

- INTEGER, parameter NFIX = 3
- INTEGER, parameter NREACT = 122
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5.49.1 Member Data Documentation

5.49.1.1 INTEGER, parameter messy_mecca_kpp_Parameters::CNVAR = 43

5.49.1.2 INTEGER, parameter messy_mecca_kpp_Parameters::ind_ACETOL = 0

5.49.1.3 INTEGER, parameter messy_mecca_kpp_Parameters::ind_ALCOCH2OOH = 0

5.49.1.4 INTEGER, parameter messy_mecca_kpp_Parameters::ind_APINAOO = 0

5.49.1.5 INTEGER, parameter messy_mecca_kpp_Parameters::ind_APINBOO = 0

5.49.1.6 INTEGER, parameter messy_mecca_kpp_Parameters::ind_APINENE = 0

5.49.1.7 INTEGER, parameter messy_mecca_kpp_Parameters::ind_BIACET = 0

5.49.1.8 INTEGER, parameter messy_mecca_kpp_Parameters::ind_BIACETO2 = 0

5.49.1.9 INTEGER, parameter messy_mecca_kpp_Parameters::ind_BIACETOH = 0

5.49.1.10 INTEGER, parameter messy_mecca_kpp_Parameters::ind_BIACETOOH = 0

5.49.1.11 INTEGER, parameter messy_mecca_kpp_Parameters::ind_BPINANO3 = 0

5.49.1.12 INTEGER, parameter messy_mecca_kpp_Parameters::ind_BPINAO2 = 0

5.49.1.13 INTEGER, parameter messy_mecca_kpp_Parameters::ind_BPINAOOH = 0

5.49.1.14 INTEGER, parameter messy_mecca_kpp_Parameters::ind_BPINENE = 0

5.49.1.15 INTEGER, parameter messy_mecca_kpp_Parameters::ind_Br = 0

5.49.1.16 INTEGER, parameter messy_mecca_kpp_Parameters::ind_Br2 = 0

5.49.1.17 INTEGER, parameter messy_mecca_kpp_Parameters::ind_Br2_a01 = 0

5.49.1.18 INTEGER, parameter messy_mecca_kpp_Parameters::ind_Br2Clm_a01 = 0

5.49.1.19 INTEGER, parameter messy_mecca_kpp_Parameters::ind_Br2m_a01 = 0

5.49.1.20 INTEGER, parameter messy_mecca_kpp_Parameters::ind_Br_a01 = 0

5.49.1.21 INTEGER, parameter messy_mecca_kpp_Parameters::ind_BrCl = 0

5.49.1.22 INTEGER, parameter messy_mecca_kpp_Parameters::ind_BrCl2m_a01 = 0

5.49.1.23 INTEGER, parameter messy_mecca_kpp_Parameters::ind_BrCl_a01 = 0

5.49.1.24 INTEGER, parameter messy_mecca_kpp_Parameters::ind_BrHgOBr = 0

5.49.1.25 INTEGER, parameter messy_mecca_kpp_Parameters::ind_BrHgOBr_a01 = 0

5.49.1.26 INTEGER, parameter messy_mecca_kpp_Parameters::ind_Brm_a01 = 0

5.49.1.27 INTEGER, parameter messy_mecca_kpp_Parameters::ind_BrNO2 = 0

5.49.1.28 INTEGER, parameter messy_mecca_kpp_Parameters::ind_BrNO3 = 0

5.49.1.29 INTEGER, parameter messy_mecca_kpp_Parameters::ind_BrO = 0

5.49.1.30 INTEGER, parameter messy_mecca_kpp_Parameters::ind_BrOHm_a01 = 0

5.49.1.31 INTEGER, parameter messy_mecca_kpp_Parameters::ind_BrOm_a01 = 0

5.49.1.32 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C106NO3 = 0**

5.49.1.33 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C106O2 = 0**

5.49.1.34 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C106OOH = 0**

5.49.1.35 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C109CO = 0**

5.49.1.36 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C109O2 = 0**

5.49.1.37 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C109OOH = 0**

5.49.1.38 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C10PAN2 = 0**

5.49.1.39 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C235C6CO3H = 0**

5.49.1.40 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C2H2 = 0**

5.49.1.41 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C2H4 = 0**

5.49.1.42 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C2H5O2 = 0**

5.49.1.43 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C2H5O2_a01 = 0**

5.49.1.44 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C2H5OOH = 0**

5.49.1.45 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C2H6 = 0**

5.49.1.46 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C312COCO3 = 0**

5.49.1.47 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C312COCO3H = 0**

5.49.1.48 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C312COPAN = 0**

5.49.1.49 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C33CO = 0**

5.49.1.50 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C3H6 = 0**

5.49.1.51 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C3H7I = 0**

5.49.1.52 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C3H8 = 0**

5.49.1.53 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C3PAN1 = 0**

5.49.1.54 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_C3PAN2 = 0**

5.49.1.55 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C413COOOH = 0

5.49.1.56 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C44O2 = 0

5.49.1.57 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C44OOH = 0

5.49.1.58 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C4CODIAL = 0

5.49.1.59 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C511O2 = 0

5.49.1.60 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C511OOH = 0

5.49.1.61 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C512O2 = 0

5.49.1.62 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C512OOH = 0

5.49.1.63 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C513CO = 0

5.49.1.64 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C513O2 = 0

5.49.1.65 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C513OOH = 0

5.49.1.66 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C514NO3 = 0

5.49.1.67 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C514O2 = 0

5.49.1.68 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C514OOH = 0

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5.49.1.70 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C59OOH = 0

5.49.1.71 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C5H8 = 0

5.49.1.72 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C5PAN9 = 0

5.49.1.73 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C614CO = 0

5.49.1.74 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C614NO3 = 0

5.49.1.75 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C614O2 = 0

5.49.1.76 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C614OOH = 0

5.49.1.77 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C716O2 = 0

5.49.1.78 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C716OOH = 0

5.49.1.79 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C721CHO = 0

5.49.1.80 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C721CO3 = 0

5.49.1.81 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C721CO3H = 0

5.49.1.82 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C721O2 = 0

5.49.1.83 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C721OOH = 0

5.49.1.84 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C721PAN = 0

5.49.1.85 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C722O2 = 0

5.49.1.86 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C722OOH = 0

5.49.1.87 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C7PAN3 = 0

5.49.1.88 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C810NO3 = 0

5.49.1.89 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C810O2 = 0

5.49.1.90 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C810OOH = 0

5.49.1.91 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C811CO3 = 0

5.49.1.92 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C811CO3H = 0

5.49.1.93 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C811O2 = 0

5.49.1.94 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C811OOH = 0

5.49.1.95 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C811PAN = 0

5.49.1.96 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C812O2 = 0

5.49.1.97 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C812OOH = 0

5.49.1.98 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C813O2 = 0

5.49.1.99 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C813OOH = 0

5.49.1.100   INTEGER, parameter messy_mecca_kpp_Parameters::ind_C85CO3 = 0

5.49.1.101   INTEGER, parameter messy_mecca_kpp_Parameters::ind_C85CO3H = 0

5.49.1.102   INTEGER, parameter messy_mecca_kpp_Parameters::ind_C85O2 = 0

5.49.1.103 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C85OOH = 0

5.49.1.104 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C86O2 = 0

5.49.1.105 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C86OOH = 0

5.49.1.106 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C89CO2H = 0

5.49.1.107 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C89CO3 = 0

5.49.1.108 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C89CO3H = 0

5.49.1.109 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C89NO3 = 0

5.49.1.110 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C89O2 = 0

5.49.1.111 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C89OOH = 0

5.49.1.112 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C89PAN = 0

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5.49.1.115 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C8BCNO3 = 0

5.49.1.116 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C8BCO2 = 0

5.49.1.117 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C8BCOOH = 0

5.49.1.118 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C96CO3 = 0

5.49.1.119 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C96NO3 = 0

5.49.1.120 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C96O2 = 0

5.49.1.121 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C96OOH = 0

5.49.1.122 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C97O2 = 0

5.49.1.123 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C97OOH = 0

5.49.1.124 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C98NO3 = 0

5.49.1.125 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C98O2 = 0

5.49.1.126 INTEGER, parameter messy_mecca_kpp_Parameters::ind_C98OOH = 0

5.49.1.127   INTEGER, parameter messy_mecca_kpp_Parameters::ind_C9PAN2 = 0

5.49.1.128   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CCl4 = 0

5.49.1.129   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CF2Cl2 = 0

5.49.1.130   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CF2Cl2_c = 0

5.49.1.131   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CF2ClBr = 0

5.49.1.132   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CF2ClBr_c = 0

5.49.1.133   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CF3Br = 0

5.49.1.134   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CF3Br_c = 0

5.49.1.135   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CFCl3 = 0

5.49.1.136   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CFCl3_c = 0

5.49.1.137   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH2Br2 = 0

5.49.1.138   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH2ClBr = 0

5.49.1.139   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH2ClI = 0

5.49.1.140   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH2I2 = 0

5.49.1.141   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH2OHSO3m_‐ a01 = 0

5.49.1.142   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH2OO = 39

5.49.1.143   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3 = 28

5.49.1.144   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3Br = 0

5.49.1.145   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3CCl3 = 0

5.49.1.146   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3CCl3_c = 0

5.49.1.147   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3CHO = 0

5.49.1.148   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3CHO_a01 = 0

5.49.1.149   INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3Cl = 0

5.49.1.150 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3CO2H = 0**

5.49.1.151 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3CO2H_a01 = 0**

5.49.1.152 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3CO3 = 0**

5.49.1.153 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3CO3H = 0**

5.49.1.154 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3COCH2O2 = 0**

5.49.1.155 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3COCH3 = 0**

5.49.1.156 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3COCH3_-a01 = 0**

5.49.1.157 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3COOm_a01 = 0**

5.49.1.158 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3I = 0**

5.49.1.159 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3NO3 = 24**

5.49.1.160 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3O = 37**

5.49.1.161 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3O2 = 42**

5.49.1.162 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3O2_a01 = 0**

5.49.1.163 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3O2NO2 = 20**

5.49.1.164 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3OH = 18**

5.49.1.165 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3OH_a01 = 0**

5.49.1.166 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3ONO = 16**

5.49.1.167 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3OOH = 15**

5.49.1.168 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3OOH_a01 = 0**

5.49.1.169 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3SO2 = 0**

5.49.1.170 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3SO3 = 0**

5.49.1.171 INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3SO3H = 0

5.49.1.172 INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH3SO3m_a01 = 0

5.49.1.173 INTEGER, parameter messy_mecca_kpp_Parameters::ind_CH4 = 4

5.49.1.174 INTEGER, parameter messy_mecca_kpp_Parameters::ind_CHBr3 = 0

5.49.1.175 INTEGER, parameter messy_mecca_kpp_Parameters::ind_CHCl2Br = 0

5.49.1.176 INTEGER, parameter messy_mecca_kpp_Parameters::ind_CHClBr2 = 0

5.49.1.177 INTEGER, parameter messy_mecca_kpp_Parameters::ind_CHOC3COCO3 = 0

5.49.1.178 INTEGER, parameter messy_mecca_kpp_Parameters::ind_CHOC3COO2 = 0

5.49.1.179 INTEGER, parameter messy_mecca_kpp_Parameters::ind_CHOC3COOOH = 0

5.49.1.180 INTEGER, parameter messy_mecca_kpp_Parameters::ind_CHOC3COPAN = 0

5.49.1.181 INTEGER, parameter messy_mecca_kpp_Parameters::ind_CHOCOCH2O2 = 0

5.49.1.182 INTEGER, parameter messy_mecca_kpp_Parameters::ind_CHOOCHO = 0

5.49.1.183 INTEGER, parameter messy_mecca_kpp_Parameters::ind_Cl = 0

5.49.1.184 INTEGER, parameter messy_mecca_kpp_Parameters::ind_Cl2 = 0

5.49.1.185 INTEGER, parameter messy_mecca_kpp_Parameters::ind_Cl2_a01 = 0

5.49.1.186 INTEGER, parameter messy_mecca_kpp_Parameters::ind_Cl2m_a01 = 0

5.49.1.187 INTEGER, parameter messy_mecca_kpp_Parameters::ind_Cl2O2 = 0

5.49.1.188 INTEGER, parameter messy_mecca_kpp_Parameters::ind_Cl_a01 = 0

5.49.1.189 INTEGER, parameter messy_mecca_kpp_Parameters::ind_ClHgBr = 0

5.49.1.190 INTEGER, parameter messy_mecca_kpp_Parameters::ind_ClHgBr_a01 = 0

5.49.1.191 INTEGER, parameter messy_mecca_kpp_Parameters::ind_ClHgOBr = 0

5.49.1.192 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_ClHgOBr_a01 = 0**

5.49.1.193 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_Clm_a01 = 0**

5.49.1.194 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_ClNO2 = 0**

5.49.1.195 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_ClNO3 = 0**

5.49.1.196 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_ClO = 0**

5.49.1.197 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_ClOHm_a01 = 0**

5.49.1.198 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_ClOm_a01 = 0**

5.49.1.199 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_CO = 25**

5.49.1.200 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_CO13C4CHO = 0**

5.49.1.201 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_CO2 = 45**

5.49.1.202 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_CO235C5CHO = 0**

5.49.1.203 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_CO235C6CHO = 0**

5.49.1.204 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_CO235C6CO3 = 0**

5.49.1.205 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_CO235C6O2 = 0**

5.49.1.206 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_CO235C6OOH = 0**

5.49.1.207 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_CO23C3CHO = 0**

5.49.1.208 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_CO23C4CHO = 0**

5.49.1.209 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_CO23C4CO3 = 0**

5.49.1.210 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_CO23C4CO3H = 0**

5.49.1.211 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_CO2_a01 = 0**

5.49.1.212 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_CO2H3CHO** = 0

5.49.1.213 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_CO2H3CO3** = 0

5.49.1.214 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_CO2H3CO3H** = 0

5.49.1.215 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_CO3m_a01** = 0

5.49.1.216 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_D1O_a01** = 0

5.49.1.217 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_D2O_a01** = 0

5.49.1.218 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_DA_a01** = 0

5.49.1.219 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_DAHp_a01** = 0

5.49.1.220 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_DAm_a01** = 0

5.49.1.221 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_DGtAi_a01** = 0

5.49.1.222 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_DGtAs_a01** = 0

5.49.1.223 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_DMS** = 0

5.49.1.224 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_DMS_a01** = 0

5.49.1.225 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_DMSO** = 0

5.49.1.226 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_DMSO_a01** = 0

5.49.1.227 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_Dummy** = 0

5.49.1.228 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_em** = 0

5.49.1.229 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_ETHGLY** = 0

5.49.1.230 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_ETHOHNO3** = 0

5.49.1.231 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_GLYOX** = 0

5.49.1.232 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_H** = 9

5.49.1.233 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_H2** = 12

5.49.1.234 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_H2O** = 41

5.49.1.235 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_H2O2 = 6**

5.49.1.236 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_H2O2_a01 = 0**

5.49.1.237 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_H2O_a01 = 0**

5.49.1.238 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_H2OH2O = 7**

5.49.1.239 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_H2SO4 = 0**

5.49.1.240 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_H2SO4_a01 = 0**

5.49.1.241 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_HBr = 0**

5.49.1.242 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_HBr_a01 = 0**

5.49.1.243 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_HCHO = 32**

5.49.1.244 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_HCHO_a01 = 0**

5.49.1.245 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_HCl = 0**

5.49.1.246 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_HCl_a01 = 0**

5.49.1.247 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_HCO3m_a01 = 0**

5.49.1.248 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_HCOC5 = 0**

5.49.1.249 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_HCOCH2CHO = 0**

5.49.1.250 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_HCOCH2CO2H = 0**

5.49.1.251 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_HCOCH2CO3 = 0**

5.49.1.252 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_HCOCH2CO3H = 0**

5.49.1.253 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_HCOCH2O2 = 0**

5.49.1.254 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_HCOCO2H = 0**

5.49.1.255 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_HCOCO3 = 0**

5.49.1.256 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_HCOCO3A = 0**

5.49.1.257 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HCOCO3H** = 0

5.49.1.258 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HCOOH** = 29

5.49.1.259 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HCOOH_a01** = 0

5.49.1.260 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HCOOm_a01** =
0

5.49.1.261 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_Hg** = 0

5.49.1.262 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_Hg_a01** = 0

5.49.1.263 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HgBr** = 0

5.49.1.264 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HgBr2** = 0

5.49.1.265 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HgBr2_a01** = 0

5.49.1.266 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HgBr3m_a01** =
0

5.49.1.267 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HgBr4mm_a01**
= 0

5.49.1.268 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HgBrp_a01** = 0

5.49.1.269 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HgCl** = 0

5.49.1.270 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HgCl2** = 0

5.49.1.271 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HgCl2_a01** = 0

5.49.1.272 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HgCl3m_a01** = 0

5.49.1.273 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HgCl4mm_a01**
= 0

5.49.1.274 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HgClp_a01** = 0

5.49.1.275 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HgO** = 0

5.49.1.276 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HgO_a01** = 0

5.49.1.277 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HgOH_a01** = 0

5.49.1.278 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HgOHCl_a01** =
0

5.49.1.279   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HgOHOH_a01 = 0**

5.49.1.280   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HgOHp_a01 = 0**

5.49.1.281   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_Hgp_a01 = 0**

5.49.1.282   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_Hgpp_a01 = 0**

5.49.1.283   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HgSO32mm_- a01 = 0**

5.49.1.284   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HgSO3_a01 = 0**

5.49.1.285   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HI = 0**

5.49.1.286   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HI_a01 = 0**

5.49.1.287   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HIO3 = 0**

5.49.1.288   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HIO3_a01 = 0**

5.49.1.289   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HNO = 27**

5.49.1.290   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HNO3 = 17**

5.49.1.291   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HNO3_a01 = 0**

5.49.1.292   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HNO4 = 14**

5.49.1.293   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HNO4_a01 = 0**

5.49.1.294   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HO12CO3C4 = 0**

5.49.1.295   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HO2 = 36**

5.49.1.296   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HO2_a01 = 0**

5.49.1.297   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HOBr = 0**

5.49.1.298   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HOBr_a01 = 0**

5.49.1.299   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HOC2H4CO2H = 0**

5.49.1.300   INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HOC2H4CO3 = 0**

5.49.1.301 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HOC2H4CO3H = 0**

5.49.1.302 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HOCH2CH2O = 0**

5.49.1.303 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HOCH2CH2O2 = 0**

5.49.1.304 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HOCH2CHO = 0**

5.49.1.305 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HOCH2CO2H = 0**

5.49.1.306 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HOCH2CO3 = 0**

5.49.1.307 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HOCH2CO3H = 0**

5.49.1.308 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HOCH2COCHO = 0**

5.49.1.309 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HOCH2COC-O2H = 0**

5.49.1.310 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HOCH2O2 = 31**

5.49.1.311 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HOCH2O2NO2 = 21**

5.49.1.312 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HOCH2OH = 10**

5.49.1.313 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HOCH2OOH = 23**

5.49.1.314 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HOCl = 0**

5.49.1.315 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HOCl_a01 = 0**

5.49.1.316 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HOI = 0**

5.49.1.317 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HOI_a01 = 0**

5.49.1.318 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HONO = 19**

5.49.1.319 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_HONO_a01 = 0**

5.49.1.320 INTEGER, parameter messy_mecca_kpp_Parameters::ind_HOOCH2CO3 = 0

5.49.1.321 INTEGER, parameter messy_mecca_kpp_Parameters::ind_HOONO = 0

5.49.1.322 INTEGER, parameter messy_mecca_kpp_Parameters::ind_Hp = 0

5.49.1.323 INTEGER, parameter messy_mecca_kpp_Parameters::ind_Hp_a01 = 0

5.49.1.324 INTEGER, parameter messy_mecca_kpp_Parameters::ind_Hp_cs = 0

5.49.1.325 INTEGER, parameter messy_mecca_kpp_Parameters::ind_HSO3m_a01 = 0

5.49.1.326 INTEGER, parameter messy_mecca_kpp_Parameters::ind_HSO4m_a01 = 0

5.49.1.327 INTEGER, parameter messy_mecca_kpp_Parameters::ind_HSO5m_a01 = 0

5.49.1.328 INTEGER, parameter messy_mecca_kpp_Parameters::ind_HYETHO2H = 0

5.49.1.329 INTEGER, parameter messy_mecca_kpp_Parameters::ind_HYPERACET = 0

5.49.1.330 INTEGER, parameter messy_mecca_kpp_Parameters::ind_HYPROPO2 = 0

5.49.1.331 INTEGER, parameter messy_mecca_kpp_Parameters::ind_HYPROPO2H = 0

5.49.1.332 INTEGER, parameter messy_mecca_kpp_Parameters::ind_I = 0

5.49.1.333 INTEGER, parameter messy_mecca_kpp_Parameters::ind_I2 = 0

5.49.1.334 INTEGER, parameter messy_mecca_kpp_Parameters::ind_I2_a01 = 0

5.49.1.335 INTEGER, parameter messy_mecca_kpp_Parameters::ind_I2O2 = 0

5.49.1.336 INTEGER, parameter messy_mecca_kpp_Parameters::ind_IBr = 0

5.49.1.337 INTEGER, parameter messy_mecca_kpp_Parameters::ind_IBr2m_a01 = 0

5.49.1.338 INTEGER, parameter messy_mecca_kpp_Parameters::ind_IBr_a01 = 0

5.49.1.339 INTEGER, parameter messy_mecca_kpp_Parameters::ind_IC3H7NO3 = 0

5.49.1.340 INTEGER, parameter messy_mecca_kpp_Parameters::ind_IC3H7O2 = 0

5.49.1.341 INTEGER, parameter messy_mecca_kpp_Parameters::ind_IC3H7OOH = 0

5.49.1.342 INTEGER, parameter messy_mecca_kpp_Parameters::ind_ICl = 0

5.49.1.343 INTEGER, parameter messy_mecca_kpp_Parameters::ind_ICl2m_a01 = 0

5.49.1.344 INTEGER, parameter messy_mecca_kpp_Parameters::ind_ICl_a01 = 0

5.49.1.345 INTEGER, parameter messy_mecca_kpp_Parameters::ind_IClBrm_a01 = 0

5.49.1.346 INTEGER, parameter messy_mecca_kpp_Parameters::ind_Im_a01 = 0

5.49.1.347 INTEGER, parameter messy_mecca_kpp_Parameters::ind_INO2 = 0

5.49.1.348 INTEGER, parameter messy_mecca_kpp_Parameters::ind_INO3 = 0

5.49.1.349 INTEGER, parameter messy_mecca_kpp_Parameters::ind_IO = 0

5.49.1.350 INTEGER, parameter messy_mecca_kpp_Parameters::ind_IO2m_a01 = 0

5.49.1.351 INTEGER, parameter messy_mecca_kpp_Parameters::ind_IO3m_a01 = 0

5.49.1.352 INTEGER, parameter messy_mecca_kpp_Parameters::ind_IO_a01 = 0

5.49.1.353 INTEGER, parameter messy_mecca_kpp_Parameters::ind_IPART = 0

5.49.1.354 INTEGER, parameter messy_mecca_kpp_Parameters::ind_ISO2 = 0

5.49.1.355 INTEGER, parameter messy_mecca_kpp_Parameters::ind_ISON = 0

5.49.1.356 INTEGER, parameter messy_mecca_kpp_Parameters::ind_ISOOH = 0

5.49.1.357 INTEGER, parameter messy_mecca_kpp_Parameters::ind_ISOPAOH = 0

5.49.1.358 INTEGER, parameter messy_mecca_kpp_Parameters::ind_ISOPBNO3 = 0

5.49.1.359 INTEGER, parameter messy_mecca_kpp_Parameters::ind_ISOPBO2 = 0

5.49.1.360 INTEGER, parameter messy_mecca_kpp_Parameters::ind_ISOPBOH = 0

5.49.1.361 INTEGER, parameter messy_mecca_kpp_Parameters::ind_ISOPBOOH = 0

5.49.1.362 INTEGER, parameter messy_mecca_kpp_Parameters::ind_ISOPDNO3 = 0

5.49.1.363 INTEGER, parameter messy_mecca_kpp_Parameters::ind_ISOPDO2 = 0

5.49.1.364 INTEGER, parameter messy_mecca_kpp_Parameters::ind_ISOPDOH = 0

5.49.1.365 INTEGER, parameter messy_mecca_kpp_Parameters::ind_ISOPDOOH = 0

5.49.1.366 INTEGER, parameter messy_mecca_kpp_Parameters::ind_kJmol = 0

5.49.1.367 INTEGER, parameter messy_mecca_kpp_Parameters::ind_LAPINABNO3 = 0

5.49.1.368 INTEGER, parameter messy_mecca_kpp_Parameters::ind_LAPINABO2 = 0

5.49.1.369 INTEGER, parameter messy_mecca_kpp_Parameters::ind_LAPINABOOH = 0

5.49.1.370 INTEGER, parameter messy_mecca_kpp_Parameters::ind_LC4H9NO3 = 0

5.49.1.371 INTEGER, parameter messy_mecca_kpp_Parameters::ind_LC4H9O2 = 0

5.49.1.372 INTEGER, parameter messy_mecca_kpp_Parameters::ind_LC4H9OOH = 0

5.49.1.373 INTEGER, parameter messy_mecca_kpp_Parameters::ind_LC578O2 = 0

5.49.1.374 INTEGER, parameter messy_mecca_kpp_Parameters::ind_LC578OOH = 0

5.49.1.375 INTEGER, parameter messy_mecca_kpp_Parameters::ind_LC5PAN1719 = 0

5.49.1.376 INTEGER, parameter messy_mecca_kpp_Parameters::ind_LCARBON = 2

5.49.1.377 INTEGER, parameter messy_mecca_kpp_Parameters::ind_LHC4ACCHO = 0

5.49.1.378 INTEGER, parameter messy_mecca_kpp_Parameters::ind_LHC4ACCO2H = 0

5.49.1.379 INTEGER, parameter messy_mecca_kpp_Parameters::ind_LHC4ACCO3 = 0

5.49.1.380 INTEGER, parameter messy_mecca_kpp_Parameters::ind_LHC4ACCO3H = 0

5.49.1.381 INTEGER, parameter messy_mecca_kpp_Parameters::ind_LHMVKABO2 = 0

5.49.1.382 INTEGER, parameter messy_mecca_kpp_Parameters::ind_LHMVKABOOH = 0

5.49.1.383 INTEGER, parameter messy_mecca_kpp_Parameters::ind_LHOC3H6O2 = 0

5.49.1.384 INTEGER, parameter messy_mecca_kpp_Parameters::ind_LHOC3H6OOH = 0

5.49.1.385 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_LISOPACNO3 = 0**

5.49.1.386 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_LISOPACO2 = 0**

5.49.1.387 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_LISOPACOOH = 0**

5.49.1.388 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_LMEKO2 = 0**

5.49.1.389 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_LMEKOOH = 0**

5.49.1.390 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_LMVKOHABO2 = 0**

5.49.1.391 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_LMVKOHABO-OH = 0**

5.49.1.392 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_LNAPINABO2 = 0**

5.49.1.393 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_LNAPINABOOH = 0**

5.49.1.394 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_LNBPINABO2 = 0**

5.49.1.395 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_LNBPINABOOH = 0**

5.49.1.396 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_LNISO3 = 0**

5.49.1.397 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_LNISOOH = 0**

5.49.1.398 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_LO3s = 0**

5.49.1.399 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_MACO2H = 0**

5.49.1.400 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_MACO3 = 0**

5.49.1.401 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_MACO3H = 0**

5.49.1.402 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_MACR = 0**

5.49.1.403 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_MACRO2 = 0**

5.49.1.404 INTEGER, parameter **messy_mecca_kpp_Parameters::ind_MACROH = 0**

5.49.1.405 INTEGER, parameter messy_mecca_kpp_Parameters::ind_MACROOH = 0

5.49.1.406 INTEGER, parameter messy_mecca_kpp_Parameters::ind_MEK = 0

5.49.1.407 INTEGER, parameter messy_mecca_kpp_Parameters::ind_MENTHEN6ON-E = 0

5.49.1.408 INTEGER, parameter messy_mecca_kpp_Parameters::ind_MGLYOX = 0

5.49.1.409 INTEGER, parameter messy_mecca_kpp_Parameters::ind_MPAN = 0

5.49.1.410 INTEGER, parameter messy_mecca_kpp_Parameters::ind_MVK = 0

5.49.1.411 INTEGER, parameter messy_mecca_kpp_Parameters::ind_MVKO2 = 0

5.49.1.412 INTEGER, parameter messy_mecca_kpp_Parameters::ind_MVKOH = 0

5.49.1.413 INTEGER, parameter messy_mecca_kpp_Parameters::ind_MVKOOH = 0

5.49.1.414 INTEGER, parameter messy_mecca_kpp_Parameters::ind_N = 0

5.49.1.415 INTEGER, parameter messy_mecca_kpp_Parameters::ind_N2 = 44

5.49.1.416 INTEGER, parameter messy_mecca_kpp_Parameters::ind_N2D = 0

5.49.1.417 INTEGER, parameter messy_mecca_kpp_Parameters::ind_N2O = 1

5.49.1.418 INTEGER, parameter messy_mecca_kpp_Parameters::ind_N2O5 = 5

5.49.1.419 INTEGER, parameter messy_mecca_kpp_Parameters::ind_N2O5_a01 = 0

5.49.1.420 INTEGER, parameter messy_mecca_kpp_Parameters::ind_N2O_c = 0

5.49.1.421 INTEGER, parameter messy_mecca_kpp_Parameters::ind_N2p = 0

5.49.1.422 INTEGER, parameter messy_mecca_kpp_Parameters::ind_NACA = 0

5.49.1.423 INTEGER, parameter messy_mecca_kpp_Parameters::ind_Nap_a01 = 0

5.49.1.424 INTEGER, parameter messy_mecca_kpp_Parameters::ind_NC4CHO = 0

5.49.1.425 INTEGER, parameter messy_mecca_kpp_Parameters::ind_NC4H10 = 0

5.49.1.426 INTEGER, parameter messy_mecca_kpp_Parameters::ind_NH2 = 26

5.49.1.427 INTEGER, parameter messy_mecca_kpp_Parameters::ind_NH2O = 22

5.49.1.428   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NH2OH = 11

5.49.1.429   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NH3 = 3

5.49.1.430   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NH3_a01 = 0

5.49.1.431   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NH4p_a01 = 0

5.49.1.432   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NHOH = 13

5.49.1.433   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NISOPO2 = 0

5.49.1.434   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NISOPOOH = 0

5.49.1.435   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NO = 34

5.49.1.436   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NO2 = 40

5.49.1.437   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NO2_a01 = 0

5.49.1.438   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NO2m_a01 = 0

5.49.1.439   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NO3 = 33

5.49.1.440   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NO3_a01 = 0

5.49.1.441   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NO3m_a01 = 0

5.49.1.442   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NO3m_cs = 0

5.49.1.443   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NO4m_a01 = 0

5.49.1.444   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NO_a01 = 0

5.49.1.445   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NOA = 0

5.49.1.446   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NOp = 0

5.49.1.447   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NOPINDCO = 0

5.49.1.448   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NOPINDO2 = 0

5.49.1.449   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NOPINDOOH =
0

5.49.1.450   INTEGER, parameter messy_mecca_kpp_Parameters::ind_NOPINONE = 0

5.49.1.451 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_NOPINOO = 0**

5.49.1.452 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_NORPINAL = 0**

5.49.1.453 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_NORPINIC = 0**

5.49.1.454 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_Np = 0**

5.49.1.455 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_O1D = 8**

5.49.1.456 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_O2 = 43**

5.49.1.457 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_O2_a01 = 0**

5.49.1.458 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_O2m_a01 = 0**

5.49.1.459 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_O2p = 0**

5.49.1.460 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_O3 = 35**

5.49.1.461 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_O3_a01 = 0**

5.49.1.462 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_O3P = 30**

5.49.1.463 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_O3s = 0**

5.49.1.464 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_OClO = 0**

5.49.1.465 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_OCS = 0**

5.49.1.466 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_OH = 38**

5.49.1.467 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_OH2MENTHE-N6ONE = 0**

5.49.1.468 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_OH_a01 = 0**

5.49.1.469 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_OHm_a01 = 0**

5.49.1.470 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_OHMENTHEN6-ONEO2 = 0**

5.49.1.471 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_OIO = 0**

5.49.1.472 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_Op = 0**

5.49.1.473 **INTEGER, parameter messy_mecca_kpp_Parameters::ind_PAN = 0**

5.49.1.474 INTEGER, parameter messy_mecca_kpp_Parameters::ind_PAN_a01 = 0

5.49.1.475 INTEGER, parameter messy_mecca_kpp_Parameters::ind_PERPINONIC = 0

5.49.1.476 INTEGER, parameter messy_mecca_kpp_Parameters::ind_PHAN = 0

5.49.1.477 INTEGER, parameter messy_mecca_kpp_Parameters::ind_PINAL = 0

5.49.1.478 INTEGER, parameter messy_mecca_kpp_Parameters::ind_PINALNO3 = 0

5.49.1.479 INTEGER, parameter messy_mecca_kpp_Parameters::ind_PINALO2 = 0

5.49.1.480 INTEGER, parameter messy_mecca_kpp_Parameters::ind_PINALOOH = 0

5.49.1.481 INTEGER, parameter messy_mecca_kpp_Parameters::ind_PINIC = 0

5.49.1.482 INTEGER, parameter messy_mecca_kpp_Parameters::ind_PINONIC = 0

5.49.1.483 INTEGER, parameter messy_mecca_kpp_Parameters::ind_PR2O2HNO3 = 0

5.49.1.484 INTEGER, parameter messy_mecca_kpp_Parameters::ind_PROD1_a01 = 0

5.49.1.485 INTEGER, parameter messy_mecca_kpp_Parameters::ind_PROD2_a01 = 0

5.49.1.486 INTEGER, parameter messy_mecca_kpp_Parameters::ind_PRONO3BO2 = 0

5.49.1.487 INTEGER, parameter messy_mecca_kpp_Parameters::ind_RBr = 0

5.49.1.488 INTEGER, parameter messy_mecca_kpp_Parameters::ind_RCly = 0

5.49.1.489 INTEGER, parameter messy_mecca_kpp_Parameters::ind_RGM_cs = 0

5.49.1.490 INTEGER, parameter messy_mecca_kpp_Parameters::ind_RH2O = 0

5.49.1.491 INTEGER, parameter messy_mecca_kpp_Parameters::ind_RNOy = 0

5.49.1.492 INTEGER, parameter messy_mecca_kpp_Parameters::ind_RO6R1NO3 = 0

5.49.1.493 INTEGER, parameter messy_mecca_kpp_Parameters::ind_RO6R1O2 = 0

5.49.1.494 INTEGER, parameter messy_mecca_kpp_Parameters::ind_RO6R1OOH = 0

5.49.1.495 INTEGER, parameter messy_mecca_kpp_Parameters::ind_RO6R3NO3 = 0

5.49.1.496   INTEGER, parameter messy_mecca_kpp_Parameters::ind_RO6R3O2 = 0

5.49.1.497   INTEGER, parameter messy_mecca_kpp_Parameters::ind_RO6R3OOH = 0

5.49.1.498   INTEGER, parameter messy_mecca_kpp_Parameters::ind_RO6R3P = 0

5.49.1.499   INTEGER, parameter messy_mecca_kpp_Parameters::ind_ROO6R1NO3 = 0

5.49.1.500   INTEGER, parameter messy_mecca_kpp_Parameters::ind_ROO6R1O2 = 0

5.49.1.501   INTEGER, parameter messy_mecca_kpp_Parameters::ind_ROO6R1OOH = 0

5.49.1.502   INTEGER, parameter messy_mecca_kpp_Parameters::ind_ROO6R3NO3 = 0

5.49.1.503   INTEGER, parameter messy_mecca_kpp_Parameters::ind_ROO6R3O = 0

5.49.1.504   INTEGER, parameter messy_mecca_kpp_Parameters::ind_ROO6R3O2 = 0

5.49.1.505   INTEGER, parameter messy_mecca_kpp_Parameters::ind_ROO6R3OOH = 0

5.49.1.506   INTEGER, parameter messy_mecca_kpp_Parameters::ind_ROO6R4P = 0

5.49.1.507   INTEGER, parameter messy_mecca_kpp_Parameters::ind_ROO6R5O2 = 0

5.49.1.508   INTEGER, parameter messy_mecca_kpp_Parameters::ind_ROO6R5P = 0

5.49.1.509   INTEGER, parameter messy_mecca_kpp_Parameters::ind_S = 0

5.49.1.510   INTEGER, parameter messy_mecca_kpp_Parameters::ind_SF6 = 0

5.49.1.511   INTEGER, parameter messy_mecca_kpp_Parameters::ind_SH = 0

5.49.1.512   INTEGER, parameter messy_mecca_kpp_Parameters::ind_SO = 0

5.49.1.513   INTEGER, parameter messy_mecca_kpp_Parameters::ind_SO2 = 0

5.49.1.514   INTEGER, parameter messy_mecca_kpp_Parameters::ind_SO2_a01 = 0

5.49.1.515   INTEGER, parameter messy_mecca_kpp_Parameters::ind_SO3 = 0

5.49.1.516   INTEGER, parameter messy_mecca_kpp_Parameters::ind_SO3m_a01 = 0

5.49.1.517   INTEGER, parameter messy_mecca_kpp_Parameters::ind_SO3mm_a01 = 0

5.49.1.518 INTEGER, parameter messy_mecca_kpp_Parameters::ind_SO4m_a01 = 0

5.49.1.519 INTEGER, parameter messy_mecca_kpp_Parameters::ind_SO4mm_a01 = 0

5.49.1.520 INTEGER, parameter messy_mecca_kpp_Parameters::ind_SO5m_a01 = 0

5.49.1.521 INTEGER, parameter messy_mecca_kpp_Parameters::indf_CO2 = 3

5.49.1.522 INTEGER, parameter messy_mecca_kpp_Parameters::indf_N2 = 2

5.49.1.523 INTEGER, parameter messy_mecca_kpp_Parameters::indf_O2 = 1

5.49.1.524 INTEGER, parameter messy_mecca_kpp_Parameters::LU_NONZERO = 408

5.49.1.525 INTEGER, parameter messy_mecca_kpp_Parameters::NFIX = 3

5.49.1.526 INTEGER, parameter messy_mecca_kpp_Parameters::NFIXST = 43

5.49.1.527 INTEGER, parameter messy_mecca_kpp_Parameters::NLOOKAT = 0

5.49.1.528 INTEGER, parameter messy_mecca_kpp_Parameters::NMASS = 1

5.49.1.529 INTEGER, parameter messy_mecca_kpp_Parameters::NMONITOR = 0

5.49.1.530 INTEGER, parameter messy_mecca_kpp_Parameters::NONZERO = 367

5.49.1.531 INTEGER, parameter messy_mecca_kpp_Parameters::NREACT = 122

5.49.1.532 INTEGER, parameter messy_mecca_kpp_Parameters::NSPEC = 45

5.49.1.533 INTEGER, parameter messy_mecca_kpp_Parameters::NVAR = 42

5.49.1.534 INTEGER, parameter messy_mecca_kpp_Parameters::NVARACT = 40

5.49.1.535 INTEGER, parameter messy_mecca_kpp_Parameters::NVARST = 1

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_mecca_kpp_-
  parameters.f90

5.50 messy_mecca_kpp_Precision Module Reference

Public Attributes

- INTEGER, parameter sp = SELECTED_REAL_KIND(6, 30)
- INTEGER, parameter dp = SELECTED_REAL_KIND(12, 307)

- INTEGER, parameter qp = SELECTED_REAL_KIND(18, 400)

5.50.1 Member Data Documentation

5.50.1.1 INTEGER, parameter **messy_mecca_kpp_Precision::dp =** SELECTED_REAL_KIND(12, 307)

5.50.1.2 INTEGER, parameter **messy_mecca_kpp_Precision::qp =** SELECTED_REAL_KIND(18, 400)

5.50.1.3 INTEGER, parameter **messy_mecca_kpp_Precision::sp =** SELECTED_REAL_KIND(6, 30)

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_mecca_kpp_-precision.f90

5.51 messy_mecca_kpp_Rates Module Reference

Public Member Functions

- REAL(kind=dp) function ARR (A0, B0, C0)
- REAL(kind=dp) function ARR2 (A0, B0)
- REAL(kind=dp) function EP2 (A0, C0, A2, C2, A3, C3)
- REAL(kind=dp) function EP3 (A1, C1, A2, C2)
- REAL(kind=dp) function FALL (A0, B0, C0, A1, B1, C1, CF)
- ELEMENTAL REAL(kind=dp) function k_3rd (temp, cair, k0_300K, n, kinf_300K, m, fc)
- ELEMENTAL REAL(kind=dp) function k_arr (k_298, tdep, temp)
- ELEMENTAL REAL(dp) function k_SIV_H2O2 (k_298, tdep, cHp, temp)
- ELEMENTAL REAL(dp) function k_3rd_iupac (temp, cair, k0_300K, n, kinf_300K, m, fc)
- ELEMENTAL REAL(dp) function alpha_AN (n, ro2type, temp, cair)
- ELEMENTAL REAL(dp) function k_limited (k3rd, cHp)
- ELEMENTAL REAL(dp) function k_N2_O (temp, temp_ion)
- ELEMENTAL REAL(dp) function k_Op_O2 (temp, temp_ion)
- ELEMENTAL REAL(dp) function k_Op_N2 (temp, temp_ion)
- subroutine Update_SUN ()
- subroutine Update_RCONST ()
- subroutine Update_PHOTO ()

5.51.1   Member Function/Subroutine Documentation

5.51.1.1   ELEMENTAL REAL(dp) function **messy_mecca_kpp_Rates::alpha_AN** (INTEGER, intent(in) *n,* INTEGER, intent(in) *ro2type,* REAL(dp), intent(in) *temp,* REAL(dp), intent(in) *cair*)

5.51.1.2   REAL(kind=dp) function **messy_mecca_kpp_Rates::ARR** (REAL *A0,* REAL *B0,* REAL *C0*)

5.51.1.3   REAL(kind=dp) function **messy_mecca_kpp_Rates::ARR2** (REAL *A0,* REAL *B0*)

5.51.1.4   REAL(kind=dp) function **messy_mecca_kpp_Rates::EP2** (REAL *A0,* REAL *C0,* REAL *A2,* REAL *C2,* REAL *A3,* REAL *C3*)

5.51.1.5   REAL(kind=dp) function **messy_mecca_kpp_Rates::EP3** (REAL *A1,* REAL *C1,* REAL *A2,* REAL *C2*)

5.51.1.6   REAL(kind=dp) function **messy_mecca_kpp_Rates::FALL** (REAL *A0,* REAL *B0,* REAL *C0,* REAL *A1,* REAL *B1,* REAL *C1,* REAL *CF*)

5.51.1.7   ELEMENTAL REAL(kind=dp) function **messy_mecca_kpp_Rates::k_3rd** (REAL(kind=dp), intent(in) *temp,* REAL(kind=dp), intent(in) *cair,* REAL, intent(in) *k0_300K,* REAL, intent(in) *n,* REAL, intent(in) *kinf_300K,* REAL, intent(in) *m,* REAL, intent(in) *fc*)

5.51.1.8   ELEMENTAL REAL(dp) function **messy_mecca_kpp_Rates::k_3rd_iupac** (REAL(dp), intent(in) *temp,* REAL(dp), intent(in) *cair,* REAL, intent(in) *k0_300K,* REAL, intent(in) *n,* REAL, intent(in) *kinf_300K,* REAL, intent(in) *m,* REAL, intent(in) *fc*)

5.51.1.9   ELEMENTAL REAL(kind=dp) function **messy_mecca_kpp_Rates::k_arr** (REAL, intent(in) *k_298,* REAL, intent(in) *tdep,* REAL(kind=dp), intent(in) *temp*)

5.51.1.10   ELEMENTAL REAL(dp) function **messy_mecca_kpp_Rates::k_limited** (REAL(dp), intent(in) *k3rd,* REAL(dp), intent(in) *cHp*)

5.51.1.11   ELEMENTAL REAL(dp) function **messy_mecca_kpp_Rates::k_N2_O** (REAL(dp), intent(in) *temp,* REAL(dp), intent(in) *temp_ion*)

5.51.1.12   ELEMENTAL REAL(dp) function **messy_mecca_kpp_Rates::k_Op_N2** (REAL(dp), intent(in) *temp,* REAL(dp), intent(in) *temp_ion*)

5.51.1.13   ELEMENTAL REAL(dp) function **messy_mecca_kpp_Rates::k_Op_O2** (REAL(dp), intent(in) *temp,* REAL(dp), intent(in) *temp_ion*)

5.51.1.14   ELEMENTAL REAL(dp) function **messy_mecca_kpp_Rates::k_SIV_H2O2** (REAL, intent(in) *k_298,* REAL, intent(in) *tdep,* REAL(dp), intent(in) *cHp,* REAL(dp), intent(in) *temp*)

5.51.1.15 subroutine messy_mecca_kpp_Rates::Update_PHOTO ( )

5.51.1.16 subroutine messy_mecca_kpp_Rates::Update_RCONST ( )

5.51.1.17 subroutine messy_mecca_kpp_Rates::Update_SUN ( )

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_mecca_kpp_-
  rates.f90

5.52 messy_mecca_kpp_Util Module Reference

Public Member Functions

- subroutine initialize_indexarrays
- subroutine InitSaveData ()
- subroutine SaveData ()
- subroutine CloseSaveData ()
- subroutine GenerateMatlab (PREFIX)
- ELEMENTAL INTEGER function tag2num (id)
- subroutine Shuffle_user2kpp (V_USER, V)
- subroutine Shuffle_kpp2user (V, V_USER)
- subroutine GetMass (CL, Mass)

5.52.1 Member Function/Subroutine Documentation

5.52.1.1 subroutine messy_mecca_kpp_Util::CloseSaveData ( )

5.52.1.2 subroutine messy_mecca_kpp_Util::GenerateMatlab (CHARACTER(LEN=8)
            ***PREFIX*)**

5.52.1.3 subroutine messy_mecca_kpp_Util::GetMass (REAL(kind=dp),
            dimension(nspec) *CL,* REAL(kind=dp), dimension(1) *Mass*)

5.52.1.4 subroutine messy_mecca_kpp_Util::initialize_indexarrays ( )

5.52.1.5 subroutine messy_mecca_kpp_Util::InitSaveData ( )

5.52.1.6 subroutine messy_mecca_kpp_Util::SaveData ( )

5.52.1.7 subroutine messy_mecca_kpp_Util::Shuffle_kpp2user (REAL(kind=dp),
            dimension(nvar) *V,* REAL(kind=dp), dimension(nvar) *V_USER*)

5.52.1.8 **subroutine messy_mecca_kpp_Util::Shuffle_user2kpp (** REAL(kind=dp), dimension(nvar) *V_USER,* REAL(kind=dp), dimension(nvar) *V* **)**

5.52.1.9 **ELEMENTAL INTEGER function messy_mecca_kpp_Util::tag2num (** CHARACTER(LEN=∗), intent(in) *id* **)**

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_mecca_kpp_-util.f90

5.53 messy_mecca_tag_box Module Reference

Public Member Functions

- subroutine, public mecca_tag_emis
- subroutine, public mecca_tag_prepare (C)
- subroutine, public mecca_tag_process (TSL, C, press, cair, temp)
- subroutine, public mecca_tag_resetPTs
- subroutine, public mecca_tag_init
- subroutine, public mecca_tag_result (model_time)
- subroutine, public mecca_tag_finish

5.53.1 Member Function/Subroutine Documentation

5.53.1.1 **subroutine, public messy_mecca_tag_box::mecca_tag_emis (** **)**

5.53.1.2 **subroutine, public messy_mecca_tag_box::mecca_tag_finish (** **)**

5.53.1.3 **subroutine, public messy_mecca_tag_box::mecca_tag_init (** **)**

5.53.1.4 **subroutine, public messy_mecca_tag_box::mecca_tag_prepare (** REAL(dp), dimension(:), intent(in) *C* **)**

5.53.1.5 **subroutine, public messy_mecca_tag_box::mecca_tag_process (** REAL(dp), intent(in) *TSL,* REAL(dp), dimension(:), intent(in) *C,* REAL(dp), intent(in) *press,* REAL(dp), intent(in) *cair,* REAL(dp), intent(in) *temp* **)**

5.53.1.6 **subroutine, public messy_mecca_tag_box::mecca_tag_resetPTs (** **)**

5.53.1.7 **subroutine, public messy_mecca_tag_box::mecca_tag_result (** REAL(dp), intent(in) *model_time* **)**

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_mecca_tag_-box.f90

5.54 messy_radjimt Module Reference

Public Member Functions

- subroutine, public radjimt_read_nml_ctrl (status, iou)

- subroutine, public radjimt_readfluxes (s2k_h2o2_fluxes_f, O3_Xsections_f)

- subroutine, public MesoSol (m, l, ht_dim, heatrates, gas1_1d, gas2_1d, gas3-_1d, gas_O3_1d, gas_H2O_1d, gas_H2O2_1d, nden1d, csza, r0_eff, scht1d, temp1d, ht1d, cp1d, den1d, eccentric, f107, pres, mmw_gas1, mmw_gas2, GR-AV0, l_reduceO3heating)

- subroutine, public ThermoSol (m, l, ht_dim, gas1_1d, gas2_1d, gas3_1d, gas-_O3_1d, F107, csza, ht1d, heatrates, temp1d, eccentric, cp1d, scht1d, pres, den1d, R0_eff, nden1d, GRAV0, iou1, iou2)

- subroutine, public CO2ChapManHeating (m, l, den1d, cp1d, ht1d, ht_dim, csza, co2_chap_heat)

- subroutine, public BranchingRatios (ht_dim, pres, htav)

Public Attributes

- CHARACTER(LEN=∗), parameter, public modstr = 'radjimt'
- CHARACTER(LEN=∗), parameter, public modver = '1.0'
- INTEGER, parameter, public heatcool_rates = 9
- INTEGER, parameter, public ht_branches = 17
- REAL(dp), dimension(:,:), allocatable, public branch
- INTEGER, public chem_heat_on = 0
- INTEGER, public chem_heat_on_last = 0
- REAL(dp), dimension(:,:,:,:), pointer, public jx
- REAL(dp), dimension(:), allocatable, public O2eff_bulk
- REAL(dp), dimension(:), allocatable, public O3eff_bulk
- REAL(dp), dimension(:), allocatable, public htlyeff
- REAL(dp), dimension(:), allocatable, public euveff
- REAL(dp), dimension(:), allocatable, public src1eff
- REAL(dp), dimension(:), allocatable, public PEOP
- REAL(dp), dimension(:), allocatable, public PEN2
- REAL(dp), dimension(:), allocatable, public PEO2
- REAL(dp), dimension(:,:), allocatable, public CSH2O2
- CHARACTER(LEN=STRLEN_ULONG), public file_sk2_h2o2_fluxes = "
- CHARACTER(LEN=STRLEN_ULONG), public file_O3_Xsections = "
- CHARACTER(LEN=STRLEN_ULONG), public file_s2k_fluxes = "
- CHARACTER(LEN=STRLEN_ULONG), public file_all_Xsections = "

Private Member Functions

- subroutine H2O2_photorate (n, m, l, ht_dim, temp1d, eccentric, gas2_1d, nden1d, R0_eff, csza, ht1d, gas_O3_1d, gas_H2O2_1d, GRAV0)
- subroutine H2O2_cross_section (n, NWAVES_fuv, WAVELS_fuv, temp1d, CS-H2O2)
- subroutine S2K_FLUXES (f107, eccentric, CSAO, CSIO, CSAO2, CSIO2, CSA-N2, CSIN2, FLUX, WAVELS, lyman_a_flux, NWAVES_XRAY_OUT, NWAVES_-SRC_OUT, NWAVES_EUV_OUT, lyman_a_num, s2k_fluxes_f, all_Xsections_f)
- subroutine CMAT1_FLUXES (f107, eccentric, CSAO, CSIO, CSAO2, CSIO2, C-SAN2, CSIN2, FLUX, WAVELS, lyman_a_flux, NWAVES_XRAY_OUT, NWAVE-S_SRC_OUT, NWAVES_EUV_OUT, lyman_a_num)
- subroutine S2K_INTERP (S2K_ALLFLUXES, F107_in, S2K_FLUX)
- subroutine H2O_IR (T, HT, Z)
- subroutine Secondaries (m, l, ht_dim, ht1d, pres)
- REAL(dp) function Chapmann (coszen, scht, ht)

Private Attributes

- INTEGER, parameter total_heat_l = 1
- INTEGER, parameter o3_chap_heat_l = 2
- INTEGER, parameter o3_hart_heat_l = 3
- INTEGER, parameter o3_hugg_heat_l = 4
- INTEGER, parameter o3_herz_heat_l = 5
- INTEGER, parameter o2_meso_heat_l = 6
- INTEGER, parameter euv_heat_l = 7
- INTEGER, parameter uv_heat_l = 8
- INTEGER, parameter total_cool_l = 1
- INTEGER, parameter co2_cool_l = 2
- INTEGER, parameter o3_cool_l = 3
- INTEGER, parameter o_cool_l = 4
- INTEGER, parameter no_cool_l = 5
- INTEGER b_aurqo2_b1 = 1
- INTEGER b_aurqo2_b2 = 2
- INTEGER b_aurqn2_b1 = 3
- INTEGER b_aurqn2_b2 = 4
- INTEGER b_aurqn2_b3 = 5
- INTEGER b_aurqn2_b4 = 6
- INTEGER b_jio2_b1 = 7
- INTEGER b_jio2_b2 = 8
- INTEGER b_jin2_b1 = 9
- INTEGER b_jin2_b2 = 10
- INTEGER b_jin2_b3 = 11
- INTEGER b_sen2_b1 = 12
- INTEGER b_sen2_b2 = 13
- INTEGER b_sen2_b3 = 14

- INTEGER b_sen2_b4 = 15
- INTEGER b_seo2_b1 = 16
- INTEGER b_seo2_b2 = 17
- INTEGER maxn = -1
- INTEGER minn = 1000
- INTEGER, parameter NWAVES_FUV = 92
- REAL(dp) S2K_h2o2_ALLFLUXES
- REAL(dp) S2K_FLUX_FUV
- REAL(dp) WAVELS_FUV
- REAL(dp) CSAO3
- REAL(dp), parameter GSCON = R_gas∗1.e3_dp

5.54.1 Member Function/Subroutine Documentation

5.54.1.1 subroutine, public **messy_radjimt::BranchingRatios** (INTEGER, intent(in) *ht_dim,* REAL(dp), dimension(ht_dim) *pres,* REAL(dp), dimension(ht_dim) *htav*)

5.54.1.2 REAL(dp) function **messy_radjimt::Chapmann** (REAL(dp), intent(in) *coszen,* REAL(dp), intent(in) *scht,* REAL(dp), intent(in) *ht*) `[private]`

5.54.1.3 subroutine **messy_radjimt::CMAT1_FLUXES** (REAL(dp) *f107,* REAL(dp) *eccentric,* REAL(dp), dimension(nwaves) *CSAO,* REAL(dp), dimension(nwaves) *CSIO,* REAL(dp), dimension(nwaves) *CSAO2,* REAL(dp), dimension(nwaves) *CSIO2,* REAL(dp), dimension(nwaves) *CSAN2,* REAL(dp), dimension(nwaves) *CSIN2,* REAL(dp), dimension(nwaves) *FLUX,* REAL(dp), dimension(nwaves) *WAVELS,* REAL(dp) *lyman_a_flux,* INTEGER *NWAVES_XRAY_OUT,* INTEGER *NWAVES_SRC_OUT,* INTEGER *NWAVES_EUV_OUT,* INTEGER *lyman_a_num*) `[private]`

5.54.1.4 subroutine, public **messy_radjimt::CO2ChapManHeating** (INTEGER, intent(in) *m,* INTEGER, intent(in) *l,* REAL(dp), dimension(ht_dim), intent(in) *den1d,* REAL(dp), dimension(ht_dim), intent(in) *cp1d,* REAL(dp), dimension(ht_dim), intent(in) *ht1d,* INTEGER, intent(in) *ht_dim,* REAL(dp), intent(in) *csza,* REAL(dp), dimension(ht_dim), intent(out) *co2_chap_heat*)

5.54.1.5 subroutine **messy_radjimt::H2O2_cross_section** (INTEGER, intent(in) *n,* INTEGER, intent(in) *NWAVES_fuv,* REAL(dp), dimension(:), intent(in) *WAVELS_fuv,* REAL(dp), dimension(:), intent(in) *temp1d,* REAL(dp), dimension(:,:), intent(inout) *CSH2O2*) `[private]`

5.54.1.6 subroutine **messy_radjimt::H2O2_photorate** (INTEGER, intent(in) *n,* INTEGER, intent(in) *m,* INTEGER, intent(in) *l,* INTEGER, intent(in) *ht_dim,* REAL(dp), dimension(ht_dim), intent(in) *temp1d,* REAL(dp), intent(in) *eccentric,* REAL(dp), dimension(ht_dim), intent(in) *gas2_1d,* REAL(dp), dimension(ht_dim), intent(in) *nden1d,* REAL(dp), dimension(ht_dim), intent(in) *R0_eff,* REAL(dp), intent(in) *csza,* REAL(dp), dimension(ht_dim), intent(in) *ht1d,* REAL(dp), dimension(ht_dim), intent(in) *gas_O3_1d,* REAL(dp), dimension(ht_dim), intent(in) *gas_H2O2_1d,* REAL(dp), intent(in) *GRAV0*) `[private]`

5.54.1.7 **subroutine messy_radjimt::H2O_IR** (REAL, dimension(nlong,nlat,nhght) *T,* REAL, dimension(nlong,nlat,nhght) *HT,* REAL, dimension(nhght) *Z*) [private]

5.54.1.8 **subroutine, public messy_radjimt::MesoSol** (INTEGER, intent(in) *m,* INTEGER, intent(in) *l,* INTEGER, intent(in) *ht_dim,* REAL(dp), dimension(:,:,:,:), pointer *heatrates,* REAL(dp), dimension(ht_dim), intent(in) *gas1_1d,* REAL(dp), dimension(ht_dim), intent(in) *gas2_1d,* REAL(dp), dimension(ht_dim), intent(in) *gas3_1d,* REAL(dp), dimension(ht_dim), intent(in) *gas_O3_1d,* REAL(dp), dimension(ht_dim), intent(in) *gas_H2O_1d,* REAL(dp), dimension(ht_dim), intent(in) *gas_H2O2_1d,* REAL(dp), dimension(ht_dim), intent(in) *nden1d,* REAL(dp), intent(in) *csza,* REAL(dp), dimension(ht_dim), intent(in) *r0_eff,* REAL(dp), dimension(ht_dim), intent(in) *scht1d,* REAL(dp), dimension(ht_dim), intent(in) *temp1d,* REAL(dp), dimension(ht_dim), intent(in) *ht1d,* REAL(dp), dimension(ht_dim), intent(in) *cp1d,* REAL(dp), dimension(ht_dim), intent(in) *den1d,* REAL(dp), intent(in) *eccentric,* REAL(dp), intent(in) *f107,* REAL(dp), dimension(ht_dim), intent(in) *pres,* REAL(dp), intent(in) *mmw_gas1,* REAL(dp), intent(in) *mmw_gas2,* REAL(dp), intent(in) *GRAV0,* LOGICAL, intent(in) *l_reduceO3heating*)

5.54.1.9 **subroutine, public messy_radjimt::radjimt_read_nml_ctrl** (INTEGER, intent(out) *status,* INTEGER, intent(in) *iou*)

5.54.1.10 **subroutine, public messy_radjimt::radjimt_readfluxes** (INTEGER, intent(in) *s2k_h2o2_fluxes_f,* INTEGER, intent(in) *O3_Xsections_f*)

5.54.1.11 **subroutine messy_radjimt::S2K_FLUXES** (REAL(dp) *f107,* REAL(dp) *eccentric,* REAL(dp), dimension(nwaves) *CSAO,* REAL(dp), dimension(nwaves) *CSIO,* REAL(dp), dimension(nwaves) *CSAO2,* REAL(dp), dimension(nwaves) *CSIO2,* REAL(dp), dimension(nwaves) *CSAN2,* REAL(dp), dimension(nwaves) *CSIN2,* REAL(dp), dimension(nwaves) *FLUX,* REAL(dp), dimension(nwaves) *WAVELS,* REAL(dp) *lyman_a_flux,* INTEGER *NWAVES_XRAY_OUT,* INTEGER *NWAVES_SRC_OUT,* INTEGER *NWAVES_EUV_OUT,* INTEGER *lyman_a_num,* INTEGER, intent(in) *s2k_fluxes_f,* INTEGER, intent(in) *all_Xsections_f*) [private]

5.54.1.12 **subroutine messy_radjimt::S2K_INTERP** (REAL(dp), dimension(nwaves,nf107s+1) *S2K_ALLFLUXES,* REAL(dp) *F107_in,* REAL(dp), dimension(nwaves) *S2K_FLUX*) [private]

5.54.1.13 **subroutine messy_radjimt::Secondaries** (INTEGER, intent(in) *m,* INTEGER, intent(in) *l,* INTEGER, intent(in) *ht_dim,* REAL(dp), dimension(ht_dim), intent(in) *ht1d,* REAL(dp), dimension(ht_dim), intent(in) *pres*) [private]

5.54.1.14   subroutine, public messy_radjimt::ThermoSol (INTEGER, intent(in) *m,* INTEGER, intent(in) *l,* INTEGER, intent(in) *ht_dim,* REAL(dp), dimension(ht_dim), intent(in) *gas1_1d,* REAL(dp), dimension(ht_dim), intent(in) *gas2_1d,* REAL(dp), dimension(ht_dim), intent(in) *gas3_1d,* REAL(dp), dimension(ht_dim), intent(in) *gas_O3_1d,* REAL(dp), intent(in) *F107,* REAL(dp), intent(in) *csza,* REAL(dp), dimension(ht_dim), intent(in) *ht1d,* REAL(dp), dimension(:,:,:,:), pointer *heatrates,* REAL(dp), dimension(ht_dim), intent(in) *temp1d,* REAL(dp), intent(in) *eccentric,* REAL(dp), dimension(ht_dim), intent(in) *cp1d,* REAL(dp), dimension(ht_dim), intent(in) *scht1d,* REAL(dp), dimension(ht_dim), intent(in) *pres,* REAL(dp), dimension(ht_dim), intent(in) *den1d,* REAL(dp), dimension(ht_dim), intent(in) *R0_eff,* REAL(dp), dimension(ht_dim), intent(in) *nden1d,* REAL(dp), intent(in) *GRAV0,* INTEGER, intent(in) *iou1,* INTEGER, intent(in) *iou2* **)**

5.54.2   Member Data Documentation

5.54.2.1   INTEGER messy_radjimt::b_aurqn2_b1 = 3 [private]

5.54.2.2   INTEGER messy_radjimt::b_aurqn2_b2 = 4 [private]

5.54.2.3   INTEGER messy_radjimt::b_aurqn2_b3 = 5 [private]

5.54.2.4   INTEGER messy_radjimt::b_aurqn2_b4 = 6 [private]

5.54.2.5   INTEGER messy_radjimt::b_aurqo2_b1 = 1 [private]

5.54.2.6   INTEGER messy_radjimt::b_aurqo2_b2 = 2 [private]

5.54.2.7   INTEGER messy_radjimt::b_jin2_b1 = 9 [private]

5.54.2.8   INTEGER messy_radjimt::b_jin2_b2 = 10 [private]

5.54.2.9   INTEGER messy_radjimt::b_jin2_b3 = 11 [private]

5.54.2.10   INTEGER messy_radjimt::b_jio2_b1 = 7 [private]

5.54.2.11   INTEGER messy_radjimt::b_jio2_b2 = 8 [private]

5.54.2.12   INTEGER messy_radjimt::b_sen2_b1 = 12 [private]

5.54.2.13   INTEGER messy_radjimt::b_sen2_b2 = 13 [private]

5.54.2.14   INTEGER messy_radjimt::b_sen2_b3 = 14 [private]

5.54.2.15   INTEGER messy_radjimt::b_sen2_b4 = 15 [private]

5.54.2.16   INTEGER messy_radjimt::b_seo2_b1 = 16 [private]

5.54.2.17 INTEGER messy_radjimt::b_seo2_b2 = 17 `[private]`

5.54.2.18 REAL(dp), dimension(:,:), allocatable, public messy_radjimt::branch

5.54.2.19 INTEGER, public messy_radjimt::chem_heat_on = 0

5.54.2.20 INTEGER, public messy_radjimt::chem_heat_on_last = 0

5.54.2.21 INTEGER, parameter messy_radjimt::co2_cool_l = 2 `[private]`

5.54.2.22 REAL(dp) messy_radjimt::CSAO3 `[private]`

5.54.2.23 REAL(dp), dimension(:,:), allocatable, public messy_radjimt::CSH2O2

5.54.2.24 INTEGER, parameter messy_radjimt::euv_heat_l = 7 `[private]`

5.54.2.25 REAL(dp), dimension(:), allocatable, public messy_radjimt::euveff

5.54.2.26 CHARACTER(LEN=STRLEN_ULONG), public messy_radjimt::file_all_Xsections = ''

5.54.2.27 CHARACTER(LEN=STRLEN_ULONG), public messy_radjimt::file_O3_Xsections = ''

5.54.2.28 CHARACTER(LEN=STRLEN_ULONG), public messy_radjimt::file_s2k_fluxes = ''

5.54.2.29 CHARACTER(LEN=STRLEN_ULONG), public messy_radjimt::file_sk2_h2o2_-fluxes = ''

5.54.2.30 REAL(dp), parameter messy_radjimt::GSCON = R_gas∗1.e3_dp `[private]`

5.54.2.31 INTEGER, parameter, public messy_radjimt::heatcool_rates = 9

5.54.2.32 INTEGER, parameter, public messy_radjimt::ht_branches = 17

5.54.2.33 REAL(dp), dimension(:), allocatable, public messy_radjimt::htlyeff

5.54.2.34 REAL(dp), dimension(:,:,:,:,:), pointer, public messy_radjimt::jx

5.54.2.35 INTEGER messy_radjimt::maxn = -1 `[private]`

5.54.2.36 INTEGER messy_radjimt::minn = 1000 `[private]`

5.54.2.37 CHARACTER(LEN=∗), parameter, public messy_radjimt::modstr = 'radjimt'

5.54.2.38 CHARACTER(LEN=∗), parameter, public messy_radjimt::modver = '1.0'

5.54.2.39 INTEGER, parameter messy_radjimt::no_cool_l = 5 [private]

5.54.2.40 INTEGER, parameter messy_radjimt::NWAVES_FUV = 92 [private]

5.54.2.41 INTEGER, parameter messy_radjimt::o2_meso_heat_l = 6 [private]

5.54.2.42 REAL(dp), dimension(:), allocatable, public messy_radjimt::O2eff_bulk

5.54.2.43 INTEGER, parameter messy_radjimt::o3_chap_heat_l = 2 [private]

5.54.2.44 INTEGER, parameter messy_radjimt::o3_cool_l = 3 [private]

5.54.2.45 INTEGER, parameter messy_radjimt::o3_hart_heat_l = 3 [private]

5.54.2.46 INTEGER, parameter messy_radjimt::o3_herz_heat_l = 5 [private]

5.54.2.47 INTEGER, parameter messy_radjimt::o3_hugg_heat_l = 4 [private]

5.54.2.48 REAL(dp), dimension(:), allocatable, public messy_radjimt::O3eff_bulk

5.54.2.49 INTEGER, parameter messy_radjimt::o_cool_l = 4 [private]

5.54.2.50 REAL(dp), dimension(:), allocatable, public messy_radjimt::PEN2

5.54.2.51 REAL(dp), dimension(:), allocatable, public messy_radjimt::PEO2

5.54.2.52 REAL(dp), dimension(:), allocatable, public messy_radjimt::PEOP

5.54.2.53 REAL(dp) messy_radjimt::S2K_FLUX_FUV [private]

5.54.2.54 REAL(dp) messy_radjimt::S2K_h2o2_ALLFLUXES [private]

5.54.2.55 REAL(dp), dimension(:), allocatable, public messy_radjimt::src1eff

5.54.2.56 INTEGER, parameter messy_radjimt::total_cool_l = 1 [private]

5.54.2.57 INTEGER, parameter messy_radjimt::total_heat_l = 1 [private]

5.54.2.58 INTEGER, parameter messy_radjimt::uv_heat_l = 8 [private]

5.54.2.59 REAL(dp) messy_radjimt::WAVELS_FUV [private]

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_radjimt.f90

5.55 messy_radjimt_box Module Reference

Public Member Functions

- subroutine, public radjimt_init
- subroutine, public radjimt_physc
- subroutine, public radjimt_finish
- subroutine, public radjimt_result

Private Attributes

- INTEGER ncid_radjimt
- INTEGER nlev
- INTEGER, parameter jrow = 1
- REAL(DP), dimension(:,:,:,:), pointer heatrates
- REAL(dp), dimension(:), allocatable jpress
- REAL(dp), dimension(:), allocatable nd_gas1_1d
- REAL(dp), dimension(:), allocatable nd_gas2_1d
- REAL(dp), dimension(:), allocatable nd_gas3_1d
- REAL(dp), dimension(:), allocatable gas_O3_1d
- REAL(dp), dimension(:), allocatable gas_H2O_1d
- REAL(dp), dimension(:), allocatable gas_H2O2_1d
- REAL(dp), dimension(:), allocatable nden1d
- REAL(dp), dimension(:), allocatable r0_eff
- REAL(dp), dimension(:), allocatable scht1d
- REAL(dp), dimension(:), allocatable temp1d
- REAL(dp), dimension(:), allocatable ht1d
- REAL(dp), dimension(:), allocatable cp1d
- REAL(dp), dimension(:), allocatable den1d
- REAL(dp) eccentric
- REAL(dp) f107
- REAL(dp) mmw_gas1 = 16.
- REAL(dp) mmw_gas2 = 32.
- REAL(dp) GRAV0 = 9.5
- LOGICAL l_heating
- LOGICAL l_reduceO3heating

5.55.1 Member Function/Subroutine Documentation

5.55.1.1 subroutine, public messy_radjimt_box::radjimt_finish ( )

5.55.1.2 subroutine, public messy_radjimt_box::radjimt_init ( )

Here is the call graph for this function:
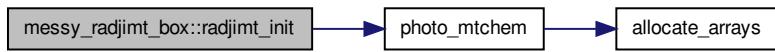
5.55.1.3 subroutine, public messy_radjimt_box::radjimt_physc ( )

5.55.1.4 subroutine, public messy_radjimt_box::radjimt_result ( )

5.55.2 Member Data Documentation

5.55.2.1 REAL(dp), dimension(:), allocatable messy_radjimt_box::cp1d [private]

5.55.2.2 REAL(dp), dimension(:), allocatable messy_radjimt_box::den1d [private]

5.55.2.3 REAL(dp) messy_radjimt_box::eccentric [private]

5.55.2.4 REAL(dp) messy_radjimt_box::f107 [private]

5.55.2.5 REAL(dp), dimension(:), allocatable messy_radjimt_box::gas_H2O2_1d [private]

5.55.2.6 REAL(dp), dimension(:), allocatable messy_radjimt_box::gas_H2O_1d [private]

5.55.2.7 REAL(dp), dimension(:), allocatable messy_radjimt_box::gas_O3_1d [private]

5.55.2.8 REAL(dp) messy_radjimt_box::GRAV0 = 9.5 [private]

5.55.2.9 REAL(DP), dimension(:,:,:,:), pointer messy_radjimt_box::heatrates [private]

5.55.2.10 REAL(dp), dimension(:), allocatable messy_radjimt_box::ht1d [private]

5.55.2.11 REAL(dp), dimension(:), allocatable messy_radjimt_box::jpress [private]

5.55.2.12 INTEGER, parameter messy_radjimt_box::jrow = 1 [private]

5.55.2.13 **LOGICAL messy_radjimt_box::l_heating** [private]

5.55.2.14 **LOGICAL messy_radjimt_box::l_reduceO3heating** [private]

5.55.2.15 **REAL(dp) messy_radjimt_box::mmw_gas1 = 16.** [private]

5.55.2.16 **REAL(dp) messy_radjimt_box::mmw_gas2 = 32.** [private]

5.55.2.17 **INTEGER messy_radjimt_box::ncid_radjimt** [private]

5.55.2.18 **REAL(dp), dimension(:), allocatable messy_radjimt_box::nd_gas1_1d** [private]

5.55.2.19 **REAL(dp), dimension(:), allocatable messy_radjimt_box::nd_gas2_1d** [private]

5.55.2.20 **REAL(dp), dimension(:), allocatable messy_radjimt_box::nd_gas3_1d** [private]

5.55.2.21 **REAL(dp), dimension(:), allocatable messy_radjimt_box::nden1d** [private]

5.55.2.22 **INTEGER messy_radjimt_box::nlev** [private]

5.55.2.23 **REAL(dp), dimension(:), allocatable messy_radjimt_box::r0_eff** [private]

5.55.2.24 **REAL(dp), dimension(:), allocatable messy_radjimt_box::scht1d** [private]

5.55.2.25 **REAL(dp), dimension(:), allocatable messy_radjimt_box::temp1d** [private]

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_radjimt_box.f90

5.56 messy_readj Module Reference

Public Attributes

- REAL(DP), dimension(ip_max), save, public jx

5.56.1 Member Data Documentation

5.56.1.1 REAL(DP), dimension(ip_max), save, public messy_readj::jx

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_readj.f90

5.57 messy_readj_box Module Reference

Public Member Functions

- subroutine, public readj_init

5.57.1 Member Function/Subroutine Documentation

5.57.1.1 subroutine, public messy_readj_box::readj_init ( )

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_readj_box.f90

5.58 messy_sappho Module Reference

Public Member Functions

- subroutine, public jvalues (cossza, photo_scenario, rad_lat, photon)

Public Attributes

- CHARACTER(LEN=∗), parameter, public modstr = 'sappho'
- REAL(DP), dimension(ip_max), save, public jx

5.58.1 Member Function/Subroutine Documentation

5.58.1.1 **subroutine, public messy_sappho::jvalues (REAL(DP), intent(in) _cossza,_ CHARACTER(LEN=12), intent(in) _photo_scenario,_ REAL(DP), intent(in) _rad_lat,_ REAL(DP), intent(out) _photon_)**

Here is the call graph for this function:
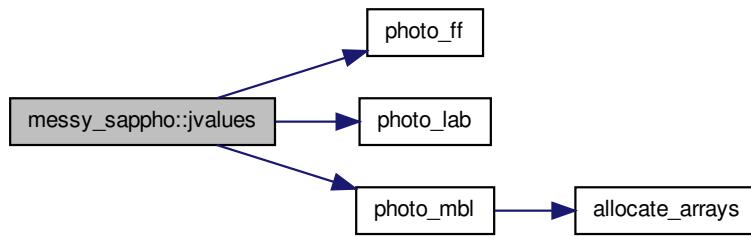
5.58.2 **Member Data Documentation**

5.58.2.1 **REAL(DP), dimension(ip_max), save, public messy_sappho::jx**

5.58.2.2 **CHARACTER(LEN=∗), parameter, public messy_sappho::modstr = 'sappho'**

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_sappho.f90

5.59 messy_sappho_box Module Reference

Public Member Functions

- subroutine, public sappho_init
- subroutine, public sappho_physc
- subroutine, public sappho_finish
- subroutine, public sappho_result

Public Attributes

- INTEGER ncid_sappho
- REAL(DP) photon

5.59.1 Member Function/Subroutine Documentation

5.59.1.1 subroutine, public messy_sappho_box::sappho_finish ( )

5.59.1.2 subroutine, public messy_sappho_box::sappho_init ( )

5.59.1.3 subroutine, public messy_sappho_box::sappho_physc ( )

5.59.1.4 subroutine, public messy_sappho_box::sappho_result ( )

5.59.2 Member Data Documentation

5.59.2.1 INTEGER messy_sappho_box::ncid_sappho

5.59.2.2 REAL(DP) messy_sappho_box::photon

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_sappho_box.f90

5.60 messy_semidep_box Module Reference

Public Member Functions

- subroutine, public semidep_physc

Private Member Functions

- subroutine emission

- subroutine drydep

5.60.1 Member Function/Subroutine Documentation

5.60.1.1 subroutine messy_semidep_box::drydep ( ) `[private]`

Here is the call graph for this function:
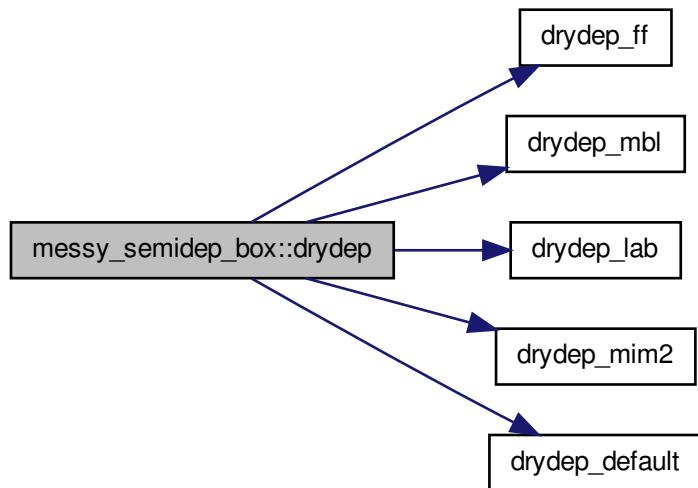
5.60.1.2 subroutine messy_semidep_box::emission ( ) `[private]`

Here is the call graph for this function:
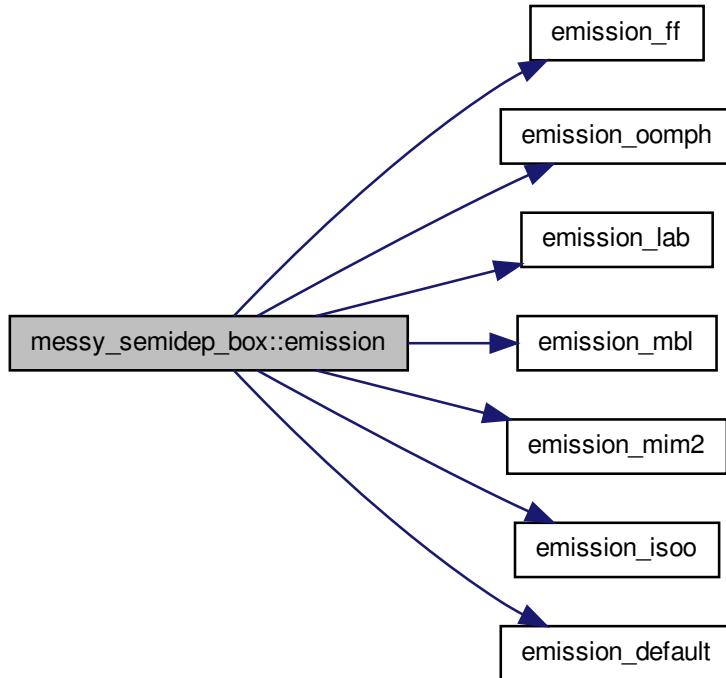
5.60.1.3 subroutine, public messy_semidep_box::semidep_physc ( )

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_semidep_box.-
  f90

5.61 messy_traject_box Module Reference

Public Member Functions

- subroutine get_model_start_end

- subroutine get_physc_data
- subroutine traject_init
- subroutine traject_result
- subroutine traject_finish
- subroutine traject_physc

Public Attributes

- INTEGER dimid_time
- INTEGER len_time
- INTEGER varid_time
- INTEGER varid_press
- INTEGER varid_relhum
- INTEGER varid_temp
- INTEGER varid_lat
- INTEGER varid_lon
- INTEGER varid_jno2
- INTEGER ncid_physc
- INTEGER ncid_traj
- INTEGER ncid_jval
- INTEGER trajpct
- INTEGER intpct = 1
- REAL(dp) timesteplen_orig
- LOGICAL l_next_trajp
- REAL(dp) ratio1
- REAL(dp) ratio2
- REAL(dp) lontmp
- REAL(dp) time1
- REAL(dp) time2
- REAL(dp) relhum1
- REAL(dp) relhum2
- REAL(dp) temp1
- REAL(dp) temp2
- REAL(dp) press1
- REAL(dp) press2
- REAL(dp) lat1
- REAL(dp) lat2
- REAL(dp) lon1
- REAL(dp) lon2
- REAL(dp) cair_old
- REAL(dp) jno21
- REAL(dp) jno22

5.61.1 Member Function/Subroutine Documentation

5.61.1.1 subroutine messy_traject_box::get_model_start_end ( )

5.61.1.2 subroutine messy_traject_box::get_physc_data ( )

5.61.1.3 subroutine messy_traject_box::traject_finish ( )

5.61.1.4 subroutine messy_traject_box::traject_init ( )

5.61.1.5 subroutine messy_traject_box::traject_physc ( )

5.61.1.6 subroutine messy_traject_box::traject_result ( )

5.61.2 Member Data Documentation

5.61.2.1 REAL(dp) messy_traject_box::cair_old

5.61.2.2 INTEGER messy_traject_box::dimid_time

5.61.2.3 INTEGER messy_traject_box::intpct = 1

5.61.2.4 REAL(dp) messy_traject_box::jno21

5.61.2.5 REAL(dp) messy_traject_box::jno22

5.61.2.6 LOGICAL messy_traject_box::l_next_trajp

5.61.2.7 REAL(dp) messy_traject_box::lat1

5.61.2.8 REAL(dp) messy_traject_box::lat2

5.61.2.9 INTEGER messy_traject_box::len_time

5.61.2.10 REAL(dp) messy_traject_box::lon1

5.61.2.11 REAL(dp) messy_traject_box::lon2

5.61.2.12 REAL(dp) messy_traject_box::lontmp

5.61.2.13 INTEGER messy_traject_box::ncid_jval

5.61.2.14 INTEGER messy_traject_box::ncid_physc

5.61.2.15 INTEGER messy_traject_box::ncid_traj

5.61.2.16 REAL(dp) messy_traject_box::press1

5.61.2.17 REAL(dp) messy_traject_box::press2

5.61.2.18 REAL(dp) messy_traject_box::ratio1

5.61.2.19 REAL(dp) messy_traject_box::ratio2

5.61.2.20 REAL(dp) messy_traject_box::relhum1

5.61.2.21 REAL(dp) messy_traject_box::relhum2

5.61.2.22 REAL(dp) messy_traject_box::temp1

5.61.2.23 REAL(dp) messy_traject_box::temp2

5.61.2.24 REAL(dp) messy_traject_box::time1

5.61.2.25 REAL(dp) messy_traject_box::time2

5.61.2.26 REAL(dp) messy_traject_box::timesteplen_orig

5.61.2.27 INTEGER messy_traject_box::trajpct

5.61.2.28 INTEGER messy_traject_box::varid_jno2

5.61.2.29 INTEGER messy_traject_box::varid_lat

5.61.2.30 INTEGER messy_traject_box::varid_lon

5.61.2.31 INTEGER messy_traject_box::varid_press

5.61.2.32 INTEGER messy_traject_box::varid_relhum

5.61.2.33 INTEGER messy_traject_box::varid_temp

5.61.2.34 INTEGER messy_traject_box::varid_time

The documentation for this module was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_traject_box.f90

5.62 messy_main_rnd_mtw_ja::mod_by_x Interface Reference

Private Member Functions

- subroutine gf2x_mod_by_x (c, a, i)

5.62.1 Member Function/Subroutine Documentation

5.62.1.1 subroutine messy_main_rnd_mtw_ja::mod_by_x::gf2x_mod_by_x (type(gf2x_obj), intent(inout) *c,* type(gf2x_obj), intent(in) *a,* integer(INT32), intent(in) *i*) `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-ja.f90

5.63 messy_main_rnd_mtw_ja::mult Interface Reference

Private Member Functions

- recursive subroutine gf2x_mult_kara (c, a, b)

5.63.1 Member Function/Subroutine Documentation

5.63.1.1 recursive subroutine messy_main_rnd_mtw_ja::mult::gf2x_mult_kara (type(gf2x_obj), intent(inout) *c,* type(gf2x_obj), intent(in) *a,* type(gf2x_obj), intent(in) *b*) `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-ja.f90

5.64 messy_main_rnd_mtw_ja::mult_assign Interface Reference

Private Member Functions

- subroutine gf2x_mult_assign_kara (a, b)

5.64.1 Member Function/Subroutine Documentation

5.64.1.1 subroutine messy_main_rnd_mtw_ja::mult_assign::gf2x_mult_-assign_kara (type(gf2x_obj), intent(inout) *a,* type(gf2x_obj), intent(in) *b*) `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-ja.f90

5.65 messy_main_rnd_mtw_ja::mult_by_x Interface Reference

Private Member Functions

- subroutine gf2x_mult_by_x (c, a, i)

5.65.1 Member Function/Subroutine Documentation

5.65.1.1 subroutine messy_main_rnd_mtw_ja::mult_by_x::gf2x_mult_by_x (type(gf2x_obj), intent(inout) *c,* type(gf2x_obj), intent(in) *a,* integer(INT32), intent(in) *i*) `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-
ja.f90

5.66 messy_main_rnd_mtw_ja::new Interface Reference

Private Member Functions

- subroutine gf2x_new (this, deg)
- subroutine gf2x_delete_prime (mp)

5.66.1 Member Function/Subroutine Documentation

5.66.1.1 subroutine messy_main_rnd_mtw_ja::new::gf2x_delete_prime (type(gf2x_prime_obj), intent(inout) *mp*) `[private]`

5.66.1.2 subroutine messy_main_rnd_mtw_ja::new::gf2x_new (type(gf2x_obj), intent(inout) *this,* integer(INT32), intent(in) *deg*) `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-
ja.f90

5.67 messy_main_rnd_mtw_ja::pow Interface Reference

Private Member Functions

- subroutine gf2x_pow (c, a, e)
- subroutine gf2x_pow_mod (c, a, e, m)

5.67.1 Member Function/Subroutine Documentation

5.67.1.1 subroutine messy_main_rnd_mtw_ja::pow::gf2x_pow (type(gf2x_obj), intent(inout) *c,* type(gf2x_obj), intent(in) *a,* integer(INT32), intent(in) *e*) `[private]`

5.67.1.2 subroutine messy_main_rnd_mtw_ja::pow::gf2x_pow_mod (type(gf2x_obj), intent(inout) *c,* type(gf2x_obj), intent(in) *a,* integer(INT32), intent(in) *e,* type(gf2x_prime_obj), intent(in) *m*) `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-
ja.f90

5.68 messy_main_rnd_mtw_ja::print_bit Interface Reference

Private Member Functions

- subroutine gf2x_print_bit (this)

5.68.1 Member Function/Subroutine Documentation

5.68.1.1 subroutine messy_main_rnd_mtw_ja::print_bit::gf2x_print_bit (type(gf2x_obj), intent(in) *this*) `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-
ja.f90

5.69 messy_main_rnd_mtw_ja::print_hex Interface Reference

Private Member Functions

- subroutine gf2x_print_hex (this)

5.69.1 Member Function/Subroutine Documentation

5.69.1.1 subroutine messy_main_rnd_mtw_ja::print_hex::gf2x_print_hex (type(gf2x_obj), intent(in) *this*) `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-
  ja.f90

5.70 messy_main_tools::PTR_0D_ARRAY Type Reference

Private Attributes

- REAL(DP), pointer PTR

5.70.1 Member Data Documentation

5.70.1.1 REAL(DP), pointer messy_main_tools::PTR_0D_ARRAY::PTR
`[private]`

The documentation for this type was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_tools.f90

5.71 messy_main_tools::PTR_1D_ARRAY Type Reference

Private Attributes

- REAL(DP), dimension(:), pointer PTR

5.71.1 Member Data Documentation

5.71.1.1 REAL(DP), dimension(:), pointer messy_main_tools::PTR_1D_ARRAY::PTR
`[private]`

The documentation for this type was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_tools.f90

5.72 messy_main_tools::PTR_1D_ARRAY_INT Type Reference

Private Attributes

- INTEGER, dimension(:), pointer PTR

5.72.1   Member Data Documentation

5.72.1.1   INTEGER, dimension(:), pointer messy_main_tools::PTR_1D_ARRAY_INT::P-TR [private]

The documentation for this type was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_tools.f90

5.73   messy_main_tools::PTR_2D_ARRAY Type Reference

Private Attributes

- REAL(DP), dimension(:,:), pointer PTR

5.73.1   Member Data Documentation

5.73.1.1   REAL(DP), dimension(:,:), pointer messy_main_tools::PTR_2D_ARRAY::PTR [private]

The documentation for this type was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_tools.f90

5.74   messy_main_tools::PTR_3D_ARRAY Type Reference

Private Attributes

- REAL(DP), dimension(:,:,:), pointer PTR

5.74.1   Member Data Documentation

5.74.1.1   REAL(DP), dimension(:,:,:), pointer messy_main_tools::PTR_3D_ARRAY::PTR [private]

The documentation for this type was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_tools.f90

5.75   messy_main_tools::PTR_4D_ARRAY Type Reference

Private Attributes

- REAL(DP), dimension(:,:,:,:), pointer PTR

5.75.1 Member Data Documentation

5.75.1.1 REAL(DP), dimension(:,:,:,:), pointer **messy_main_tools::PTR_4D_ARRAY::PTR** `[private]`

The documentation for this type was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_tools.f90

5.76 messy_main_tools::PTR_5D_ARRAY Type Reference

Private Attributes

- REAL(DP), dimension(:,:,:,:,:), pointer PTR

5.76.1 Member Data Documentation

5.76.1.1 REAL(DP), dimension(:,:,:,:,:), pointer **messy_main_tools::PTR_5D_ARRAY::P-TR** `[private]`

The documentation for this type was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_tools.f90

5.77 messy_main_rnd_mtw_ja::rem Interface Reference

Private Member Functions

- subroutine gf2x_rem (r, a, b)
- subroutine gf2x_rem_barrett (r, a, m)

5.77.1 Member Function/Subroutine Documentation

5.77.1.1 subroutine **messy_main_rnd_mtw_ja::rem::gf2x_rem** (type(gf2x_obj), intent(inout) *r,* type(gf2x_obj), intent(in) *a,* type(gf2x_obj), intent(in) *b*) `[private]`

5.77.1.2 subroutine messy_main_rnd_mtw_ja::rem::gf2x_rem_barrett (**type(gf2x_obj), intent(inout)** *r,* **type(gf2x_obj), intent(in)** *a,* **type(gf2x_prime_obj),** **intent(in)** *m* **)** `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-
  ja.f90

5.78   messy₋main₋tools::remap₋bounds Interface Reference

Private Member Functions

- REAL(dp) function, dimension(:), pointer remap_bounds1 (lb1, array)
- REAL(dp) function, dimension(:,:), pointer remap_bounds2 (lb1, lb2, array)
- REAL(dp) function, dimension(:,:,:), pointer remap_bounds3 (lb1, lb2, lb3, array)
- REAL(dp) function, dimension(:,:,:,:), pointer remap_bounds4 (lb1, lb2, lb3, lb4,
  array)

5.78.1   Member Function/Subroutine Documentation

5.78.1.1 REAL(dp) function, dimension(:), pointer messy_main_tools::remap_bounds- **::remap_bounds1 (INTEGER, intent(in)** *lb1,* **REAL(dp), dimension(lb1:), intent(in),** **target** *array* **)** `[private]`

5.78.1.2 REAL(dp) function, dimension(:,:), pointer messy_main_tools::remap_bounds- **::remap_bounds2 (INTEGER, intent(in)** *lb1,* **INTEGER, intent(in)** *lb2,* **REAL(dp),** **dimension(lb1:,lb2:), intent(in), target** *array* **)** `[private]`

5.78.1.3 REAL(dp) function, dimension(:,:,:), pointer messy_main_tools::remap_- **bounds::remap_bounds3 (INTEGER, intent(in)** *lb1,* **INTEGER, intent(in)** *lb2,* **INTEGER, intent(in)** *lb3,* **REAL(dp), dimension(lb1:,lb2:,lb3:), intent(in), target** *array* **)** `[private]`

5.78.1.4 REAL(dp) function, dimension(:,:,:,:), pointer messy_main_tools::remap- **_bounds::remap_bounds4 (INTEGER, intent(in)** *lb1,* **INTEGER,** **intent(in)** *lb2,* **INTEGER, intent(in)** *lb3,* **INTEGER, intent(in)** *lb4,* **REAL(dp),** **dimension(lb1:,lb2:,lb3:,lb4:), intent(in), target** *array* **)** `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_tools.f90

5.79   messy₋main₋rnd::rnd₋jump Interface Reference

Private Member Functions

- subroutine rnd_jump_n (status, id, n, get)
- subroutine rnd_jump_2 (status, id, n, p, get)

5.79.1 Member Function/Subroutine Documentation

5.79.1.1 subroutine messy_main_rnd::rnd_jump::rnd_jump_2 (INTEGER, intent(out) *status,* **INTEGER, intent(in)** *id,* **INTEGER, intent(in)** *n,* **INTEGER, intent(in)** *p,* **INTEGER, dimension(:), intent(out), optional** *get* **)** `[private]`

5.79.1.2 subroutine messy_main_rnd::rnd_jump::rnd_jump_n (INTEGER, intent(out) *status,* **INTEGER, intent(in)** *id,* **INTEGER, intent(in)** *n,* **INTEGER, dimension(:), intent(out), optional** *get* **)** `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd.f90

5.80 messy_main_rnd_mtw_ja::set_coef Interface Reference

Private Member Functions

- subroutine gf2x_set_coef (a, i)

5.80.1 Member Function/Subroutine Documentation

5.80.1.1 subroutine messy_main_rnd_mtw_ja::set_coef::gf2x_set_coef (**type(gf2x_obj), intent(inout)** *a,* **integer(INT32), intent(in)** *i* **)** `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-ja.f90

5.81 messy_main_rnd_mtw_ja::set_prime Interface Reference

Private Member Functions

- subroutine gf2x_set_prime (mp, m)

5.81.1 Member Function/Subroutine Documentation

5.81.1.1 subroutine **messy_main_rnd_mtw_ja::set_prime::gf2x_set_prime (type(gf2x_prime_obj)**, intent(inout) *mp,* **type(gf2x_obj)**, intent(in) *m* **)** `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-ja.f90

5.82 messy_main_rnd_mtw_ja::shift Interface Reference

Private Member Functions

- subroutine gf2x_shift (c, a, i)

5.82.1 Member Function/Subroutine Documentation

5.82.1.1 subroutine **messy_main_rnd_mtw_ja::shift::gf2x_shift (type(gf2x_obj)**, intent(inout) *c,* **type(gf2x_obj)**, intent(in) *a,* **integer(INT32)**, intent(in) *i* **)** `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-ja.f90

5.83 messy_main_rnd_mtw_ja::square Interface Reference

Private Member Functions

- subroutine gf2x_square (c, a)

5.83.1 Member Function/Subroutine Documentation

5.83.1.1 subroutine **messy_main_rnd_mtw_ja::square::gf2x_square (type(gf2x_obj)**, intent(inout) *c,* **type(gf2x_obj)**, intent(in) *a* **)** `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_rnd_mtw_-ja.f90

5.84   messy␣main␣tools::str Interface Reference

Private Member Functions

- CHARACTER(LEN=5) function str_logical (zlogical, fmt)
- CHARACTER(LEN=STRLEN_LONG) function str_integer (zinteger, fmt)
- CHARACTER(LEN=STRLEN_LONG) function str_real_sp (zreal_sp, fmt)
- CHARACTER(LEN=STRLEN_LONG) function str_real_dp (zreal_dp, fmt)

5.84.1   Member Function/Subroutine Documentation

5.84.1.1   CHARACTER(LEN=STRLEN␣LONG) function messy_main_tools::str::str_integer (INTEGER, intent(in) *zinteger,* CHARACTER(LEN=∗), intent(in), optional *fmt*) `[private]`

5.84.1.2   CHARACTER(LEN=5) function messy_main_tools::str::str_logical (LOGICAL, intent(in) *zlogical,* CHARACTER(LEN=∗), intent(in), optional *fmt*) `[private]`

5.84.1.3   CHARACTER(LEN=STRLEN␣LONG) function messy_main_tools::str::str_real_- dp (REAL(dp), intent(in) *zreal␣dp,* CHARACTER(LEN=∗), intent(in), optional *fmt*) `[private]`

5.84.1.4   CHARACTER(LEN=STRLEN␣LONG) function messy_main_tools::str::str_real_sp (REAL(sp), intent(in) *zreal␣sp,* CHARACTER(LEN=∗), intent(in), optional *fmt*) `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_tools.f90

5.85   messy␣main␣tools::str2num Interface Reference

Private Member Functions

- subroutine str2num_real_dp (str, out, err)
- subroutine str2num_real_sp (str, out, err)
- subroutine str2num_integer (str, out, err)

5.85.1   Member Function/Subroutine Documentation

5.85.1.1   subroutine messy_main_tools::str2num::str2num_integer (CHARACTER(LEN=∗), intent(in) *str,* INTEGER, intent(out) *out,* INTEGER, intent(out), optional *err*) `[private]`

5.85.1.2 subroutine messy_main_tools::str2num::str2num_real_dp (
CHARACTER(LEN=∗), intent(in) *str,* **REAL(dp), intent(out)** *out,* **INTEGER, intent(out),**
optional *err* **)** `[private]`

5.85.1.3 subroutine messy_main_tools::str2num::str2num_real_sp (
CHARACTER(LEN=∗), intent(in) *str,* **REAL(sp), intent(out)** *out,* **INTEGER, intent(out),**
optional *err* **)** `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_tools.f90

5.86   messy_main_tools::t_reset_par Type Reference

Private Attributes

- LOGICAL l = .FALSE.
- REAL(dp) v = 0.0_dp

5.86.1   Member Data Documentation

5.86.1.1   LOGICAL messy_main_tools::t_reset_par::l = .FALSE. `[private]`

5.86.1.2   REAL(dp) messy_main_tools::t_reset_par::v = 0.0_dp `[private]`

The documentation for this type was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_tools.f90

5.87   messy_main_timer::time_days Type Reference

Public Attributes

- LOGICAL init = .FALSE.
- INTEGER day = 0
- INTEGER second = 0

5.87.1   Member Data Documentation

5.87.1.1   INTEGER messy_main_timer::time_days::day = 0

5.87.1.2   LOGICAL messy_main_timer::time_days::init = .FALSE.

5.87.1.3 INTEGER messy_main_timer::time_days::second = 0

The documentation for this type was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_timer.f90

5.88 messy_main_timer::timer_get_date Interface Reference

Private Member Functions

- subroutine timer_get_date_str (status, strflag, yr, mo, dy, hr, mi, se)
- subroutine timer_get_date_myd (status, my_date, yr, mo, dy, hr, mi, se)

5.88.1 Member Function/Subroutine Documentation

5.88.1.1 subroutine messy_main_timer::timer_get_date::timer_get_date_myd (INTEGER, intent(out) *status,* TYPE(time_days), intent(in) *my_date,* INTEGER, intent(out) *yr,* INTEGER, intent(out) *mo,* INTEGER, intent(out) *dy,* INTEGER, intent(out) *hr,* INTEGER, intent(out) *mi,* INTEGER, intent(out) *se* **)** `[private]`

5.88.1.2 subroutine messy_main_timer::timer_get_date::timer_get_date_str (INTEGER, intent(out) *status,* CHARACTER(LEN=∗), intent(in) *strflag,* INTEGER, intent(out) *yr,* INTEGER, intent(out) *mo,* INTEGER, intent(out) *dy,* INTEGER, intent(out) *hr,* INTEGER, intent(out) *mi,* INTEGER, intent(out) *se* **)** `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_timer.f90

5.89 messy_main_timer::timer_set_date Interface Reference

Private Member Functions

- subroutine timer_set_date_str (status, strflag, yr, mo, dy, hr, mi, se)
- subroutine timer_set_date_myd (status, my_date, yr, mo, dy, hr, mi, se)
- subroutine timer_set_date_str_ds (status, strflag, day, second)
- subroutine timer_set_date_myd_ds (status, my_date, day, second)

5.89.1 Member Function/Subroutine Documentation

5.89.1.1 subroutine messy_main_timer::timer_set_date::timer_set_date_myd (INTEGER, intent(out) *status,* TYPE(time_days), intent(out) *my_date,* INTEGER, intent(in) *yr,* INTEGER, intent(in) *mo,* INTEGER, intent(in) *dy,* INTEGER, intent(in) *hr,* INTEGER, intent(in) *mi,* INTEGER, intent(in) *se* **)** `[private]`

5.89.1.2 subroutine **messy_main_timer::timer_set_date::timer_set_date_myd_ds** (
INTEGER, intent(out) *status,* TYPE(time_days), intent(out) *my‿date,* INTEGER,
intent(in) *day,* INTEGER, intent(in) *second*) `[private]`

5.89.1.3 subroutine **messy_main_timer::timer_set_date::timer_set_date_str**
(INTEGER, intent(out) *status,* CHARACTER(LEN=∗), intent(in) *strflag,* INTEGER,
intent(in) *yr,* INTEGER, intent(in) *mo,* INTEGER, intent(in) *dy,* INTEGER, intent(in) *hr,*
INTEGER, intent(in) *mi,* INTEGER, intent(in) *se*) `[private]`

5.89.1.4 subroutine **messy_main_timer::timer_set_date::timer_set_date_str_ds**
(INTEGER, intent(out) *status,* CHARACTER(LEN=∗), intent(in) *strflag,* INTEGER,
intent(in) *day,* INTEGER, intent(in) *second*) `[private]`

The documentation for this interface was generated from the following file:

- /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_main_timer.f90

Chapter 6

File Documentation

6.1 /home/sander/e2/messy₋d2.50s₋rs/messy/mbm/caaba/caaba.f90 File Reference

Data Types

- module caaba_module

    CAABA = Chemistry As A Boxmodel Application.

Functions/Subroutines

- subroutine dilute
- subroutine dilute_once
- program caaba

6.1.1 Function/Subroutine Documentation

6.1.1.1 program **caaba ( )**

6.1.1.2 subroutine **caaba_physc::dilute ( )**

6.1.1.3 subroutine **caaba_physc::dilute_once ( )**

6.2 /home/sander/e2/messy₋d2.50s₋rs/messy/mbm/caaba/caaba.nml File Reference

6.3 /home/sander/e2/messy₋d2.50s₋rs/messy/mbm/caaba/caaba₋io.f90 File Reference

Data Types

 • module caaba_io

6.4   /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/caaba_-io_ascii.inc File Reference

6.5   /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/caaba_-io_netcdf.inc File Reference

6.6   /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/caaba_-mem.f90 File Reference

Data Types

 • module caaba_mem

6.7   /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/e4chem.nml File Reference

6.8   /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/jval.nml File Reference

6.9   /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/mecca.nml File Reference

6.10   /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_cmn_gasaq.f90 File Reference

Data Types

 • module messy_cmn_gasaq
 • type messy_cmn_gasaq::GASAQ_TYPE

Functions/Subroutines

 • subroutine add_species (name, M)

**6.11 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_cmn_photol_-
mem.f90 File
Reference** **217**

- subroutine add_henry (name, Henry_T0, Henry_Tdep)
- subroutine add_alpha (name, alpha_T0, alpha_Tdep)
- subroutine add_dryreac (name, dryreac, pss)

6.10.1 Function/Subroutine Documentation

6.10.1.1 subroutine add_all_alpha::add_alpha (CHARACTER(LEN=∗), intent(in) *name,* REAL(DP), intent(in) *alpha_T0,* REAL(DP), intent(in) *alpha_Tdep*) `[private]`

6.10.1.2 subroutine add_all_dryreac::add_dryreac (CHARACTER(LEN=∗), intent(in) *name,* REAL(DP), intent(in) *dryreac,* REAL(DP), intent(in) *pss*)

6.10.1.3 subroutine add_all_henry::add_henry (CHARACTER(LEN=∗), intent(in) *name,* REAL(DP), intent(in) *Henry_T0,* REAL(DP), intent(in) *Henry_Tdep*)

6.10.1.4 subroutine def_all_species::add_species (CHARACTER(LEN=∗), intent(in) *name,* REAL(DP), intent(in) *M*) `[private]`

6.11 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_cmn_photol_mem.f90 File Reference

Data Types

- module messy_cmn_photol_mem

6.12 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_e4chem.f90 File Reference

Data Types

- module messy_e4chem

Functions/Subroutines

- REAL(dp) function ZFUNCRATNONO2 (ZDNO2, ZCN13, ZMOLECO, ZCN8, Z-MOLECO3, ZCN9, ZMOLECCLO, ZCN10, ZMOLECHO2, ZCN11, ZMOLECC-H3O2)
- REAL(dp) function ZFUNCRATNNO (ZDNO, ZCN1, ZMOLECO2, ZSCNNO2, Z-MOLECNO2, ZSCN3, ZMOLECOH, ZSCN4, ZMOLECHO2, ZSCN2, ZMOLEC-NO)
- REAL(dp) function ZFUNCPRODH2OLONG (ZCN19, ZMOLECHNO3, ZCC2, Z-MOLECHCL, ZCC14, ZMOLECCH3CL, ZCC15, ZMOLECCH3CCL3, ZCH6, Z-MOLECH2, ZCH15, ZMOLECH2O2, ZCH19, ZMOLECCH4)

- REAL(dp) function ZFUNCPRODH2OSHORT (ZCN6, ZMOLECHNO4, ZCC11, ZMOLECCLOH, ZSCH16, ZMOLECCH2O, ZSCH20, ZSCH21, ZMOLECCH3-O2H)
- REAL(dp) function ZFUNCPRODH2OHOX (ZSCH18, ZMOLECH, ZMOLECH-O2, ZCH1, ZMOLECOH)
- REAL(dp) function ZFUNC3BODY (ZK1, ZK2)

6.12.1 Function/Subroutine Documentation

6.12.1.1 REAL(dp) function CHEMICS::ZFUNC3BODY (REAL(dp), intent(in) *ZK1,* REAL(dp), intent(in) *ZK2*) `[private]`

6.12.1.2 REAL(dp) function CHEMICS::ZFUNCPRODH2OHOX (REAL(dp), intent(in) *ZSCH18,* REAL(dp), intent(in) *ZMOLECH,* REAL(dp), intent(in) *ZMOLECHO2,* REAL(dp), intent(in) *ZCH1,* REAL(dp), intent(in) *ZMOLECOH*) `[private]`

6.12.1.3 REAL(dp) function CHEMICS::ZFUNCPRODH2OLONG (REAL(dp), intent(in) *ZCN19,* REAL(dp), intent(in) *ZMOLECHNO3,* REAL(dp), intent(in) *ZCC2,* REAL(dp), intent(in) *ZMOLECHCL,* REAL(dp), intent(in) *ZCC14,* REAL(dp), intent(in) *ZMOLECCH3CL,* REAL(dp), intent(in) *ZCC15,* REAL(dp), intent(in) *ZMOLECCH3CCL3,* REAL(dp), intent(in) *ZCH6,* REAL(dp), intent(in) *ZMOLECH2,* REAL(dp), intent(in) *ZCH15,* REAL(dp), intent(in) *ZMOLECH2O2,* REAL(dp), intent(in) *ZCH19,* REAL(dp), intent(in) *ZMOLECCH4*) `[private]`

6.12.1.4 REAL(dp) function CHEMICS::ZFUNCPRODH2OSHORT (REAL(dp), intent(in) *ZCN6,* REAL(dp), intent(in) *ZMOLECHNO4,* REAL(dp), intent(in) *ZCC11,* REAL(dp), intent(in) *ZMOLECCLOH,* REAL(dp), intent(in) *ZSCH16,* REAL(dp), intent(in) *ZMOLECCH2O,* REAL(dp), intent(in) *ZSCH20,* REAL(dp), intent(in) *ZSCH21,* REAL(dp), intent(in) *ZMOLECCH3O2H*) `[private]`

6.12.1.5 REAL(dp) function CHEMICS::ZFUNCRATNNO (REAL(dp), intent(in) *ZDNO,* REAL(dp), intent(in) *ZCN1,* REAL(dp), intent(in) *ZMOLECO2,* REAL(dp), intent(in) *ZSCNNO2,* REAL(dp), intent(in) *ZMOLECNO2,* REAL(dp), intent(in) *ZSCN3,* REAL(dp), intent(in) *ZMOLECOH,* REAL(dp), intent(in) *ZSCN4,* REAL(dp), intent(in) *ZMOLECHO2,* REAL(dp), intent(in) *ZSCN2,* REAL(dp), intent(in) *ZMOLECNO*) `[private]`

6.12.1.6 REAL(dp) function CHEMICS::ZFUNCRATNONO2 (REAL(dp), intent(in) *ZDNO2,* REAL(dp), intent(in) *ZCN13,* REAL(dp), intent(in) *ZMOLECO,* REAL(dp), intent(in) *ZCN8,* REAL(dp), intent(in) *ZMOLECO3,* REAL(dp), intent(in) *ZCN9,* REAL(dp), intent(in) *ZMOLECCLO,* REAL(dp), intent(in) *ZCN10,* REAL(dp), intent(in) *ZMOLECHO2,* REAL(dp), intent(in) *ZCN11,* REAL(dp), intent(in) *ZMOLECCH3O2*)

6.13 /home/sander/e2/messy‗d2.50s‗rs/messy/mbm/caaba/messy‗e4chem‗box.f90 File Reference

Data Types

- module messy_e4chem_box

Functions/Subroutines

- subroutine x0_strato
- subroutine x0_mtchem
- subroutine check_range (infostring, conc)

6.13.1 Function/Subroutine Documentation

6.13.1.1 subroutine e4chem_physc::check_range (CHARACTER(LEN=∗), intent(in) *infostring,* **REAL(DP), dimension(:), intent(in)** *conc* **)**

6.13.1.2 subroutine x0::x0_mtchem ( ) `[private]`

6.13.1.3 subroutine x0::x0_strato ( )

6.14 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_jval.f90 File Reference

Data Types

- module messy_jval

Functions/Subroutines

- subroutine column_cal
- subroutine flux_cal
- subroutine slingo
- subroutine aero_2d
- subroutine pifm
- subroutine pifmini

6.14.1 Function/Subroutine Documentation

6.14.1.1 subroutine jvalues::aero_2d ( ) `[private]`

6.14.1.2 subroutine jvalues::column_cal ( )

6.14.1.3 subroutine jvalues::flux_cal ( ) `[private]`

Here is the call graph for this function:
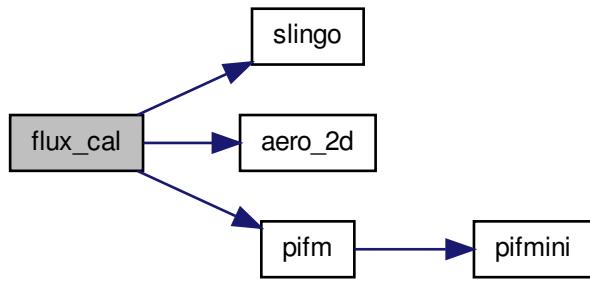
6.14.1.4 subroutine jvalues::pifm ( ) `[private]`

Here is the call graph for this function:
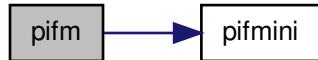
6.14.1.5 subroutine jvalues::pifmini ( ) `[private]`

6.14.1.6 subroutine jvalues::slingo ( ) `[private]`

6.15 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_jval_box.f90 File Reference

Data Types

- module messy_jval_box

Functions/Subroutines

- subroutine allocate_arrays
- subroutine photo_mbl
- subroutine photo_strato

6.15.1 Function/Subroutine Documentation

6.15.1.1 subroutine jval_init::allocate_arrays ( )

6.15.1.2 subroutine jval_init::photo_mbl ( ) `[private]`

Here is the call graph for this function:

```
┌──────────┐        ┌────────────────┐
│ photo_mbl│───────▶│ allocate_arrays│
└──────────┘        └────────────────┘
```
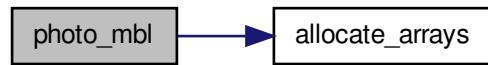
6.15.1.3 subroutine jval_init::photo_strato ( ) `[private]`

Here is the call graph for this function:

```
┌────────────┐        ┌────────────────┐
│ photo_strato│──────▶│ allocate_arrays│
└────────────┘        └────────────────┘
```

6.16 /home/sander/e2/messy␣d2.50s␣rs/messy/mbm/caaba/messy-␣jval␣jvpp.inc File Reference

Functions/Subroutines

- subroutine jval_cal
- subroutine jval_cal_O2
- subroutine jval_cal_O3P
- subroutine jval_cal_O1D
- subroutine jval_cal_H2O2
- subroutine jval_cal_NO2
- subroutine jval_cal_NO2O
- subroutine jval_cal_NOO2
- subroutine jval_cal_N2O5
- subroutine jval_cal_HNO3
- subroutine jval_cal_HNO4
- subroutine jval_cal_PAN
- subroutine jval_cal_HONO
- subroutine jval_cal_CH3OOH
- subroutine jval_cal_COH2
- subroutine jval_cal_CHOH
- subroutine jval_cal_CH3CO3H
- subroutine jval_cal_CH3CHO
- subroutine jval_cal_CH3COCH3
- subroutine jval_cal_MGLYOX
- subroutine jval_cal_HOCl
- subroutine jval_cal_OClO
- subroutine jval_cal_Cl2O2
- subroutine jval_cal_ClNO3
- subroutine jval_cal_ClNO2
- subroutine jval_cal_Cl2
- subroutine jval_cal_BrO
- subroutine jval_cal_HOBr
- subroutine jval_cal_BrCl
- subroutine jval_cal_BrNO3
- subroutine jval_cal_BrNO2
- subroutine jval_cal_Br2
- subroutine jval_cal_CCl4
- subroutine jval_cal_CH3Cl
- subroutine jval_cal_CH3CCl3
- subroutine jval_cal_CFCl3
- subroutine jval_cal_CF2Cl2
- subroutine jval_cal_CH3Br
- subroutine jval_cal_CF2ClBr
- subroutine jval_cal_CF3Br
- subroutine jval_cal_CH3I

- subroutine jval_cal_C3H7I
- subroutine jval_cal_CH2ClI
- subroutine jval_cal_CH2I2
- subroutine jval_cal_IO
- subroutine jval_cal_HOI
- subroutine jval_cal_I2
- subroutine jval_cal_ICl
- subroutine jval_cal_IBr
- subroutine jval_cal_INO2
- subroutine jval_cal_INO3
- subroutine jval_cal_SO2
- subroutine jval_cal_SO3
- subroutine jval_cal_OCS
- subroutine jval_cal_H2O
- subroutine jval_cal_N2O
- subroutine jval_cal_NO
- subroutine jval_cal_CO2
- subroutine jval_cal_HCl
- subroutine jval_cal_CHCl2Br
- subroutine jval_cal_CHClBr2
- subroutine jval_cal_CH2ClBr
- subroutine jval_cal_CH2Br2
- subroutine jval_cal_CHBr3
- subroutine jval_cal_SF6
- subroutine jval_cal_ClONO2
- subroutine jval_cal_MACR
- subroutine jval_cal_MVK
- subroutine jval_cal_GLYOX
- subroutine jval_cal_HOCH2CHO
- subroutine jval_cal_CH4
- subroutine jval_cal_H2SO4
- subroutine jval_cal_CH3NO3
- subroutine jval_cal_CH3O2NO2
- subroutine jval_cal_CH3ONO
- subroutine jval_cal_CH3O2
- subroutine jval_cal_HCOOH

6.16.1 Function/Subroutine Documentation

6.16.1.1 subroutine jval_cal ( )

6.16.1.2 subroutine jval_cal_Br2 ( )

6.16.1.3 subroutine jval_cal_BrCl ( )

6.16.1.4 **subroutine jval_cal_BrNO2 ( )**

6.16.1.5 **subroutine jval_cal_BrNO3 ( )**

6.16.1.6 **subroutine jval_cal_BrO ( )**

6.16.1.7 **subroutine jval_cal_C3H7I ( )**

6.16.1.8 **subroutine jval_cal_CCl4 ( )**

6.16.1.9 **subroutine jval_cal_CF2Cl2 ( )**

6.16.1.10 **subroutine jval_cal_CF2ClBr ( )**

6.16.1.11 **subroutine jval_cal_CF3Br ( )**

6.16.1.12 **subroutine jval_cal_CFCl3 ( )**

6.16.1.13 **subroutine jval_cal_CH2Br2 ( )**

6.16.1.14 **subroutine jval_cal_CH2ClBr ( )**

6.16.1.15 **subroutine jval_cal_CH2ClI ( )**

6.16.1.16 **subroutine jval_cal_CH2I2 ( )**

6.16.1.17 **subroutine jval_cal_CH3Br ( )**

6.16.1.18 **subroutine jval_cal_CH3CCl3 ( )**

6.16.1.19 **subroutine jval_cal_CH3CHO ( )**

6.16.1.20 **subroutine jval_cal_CH3Cl ( )**

6.16.1.21 **subroutine jval_cal_CH3CO3H ( )**

6.16.1.22 **subroutine jval_cal_CH3COCH3 ( )**

6.16.1.23 **subroutine jval_cal_CH3I ( )**

6.16.1.24 **subroutine jval_cal_CH3NO3 ( )**

6.16.1.25 **subroutine jval_cal_CH3O2 ( )**

6.16.1.26 **subroutine jval_cal_CH3O2NO2 ( )**

6.16.1.27 **subroutine jval_cal_CH3ONO ( )**

6.16.1.28 subroutine jval_cal_CH3OOH ( )

6.16.1.29 subroutine jval_cal_CH4 ( )

6.16.1.30 subroutine jval_cal_CHBr3 ( )

6.16.1.31 subroutine jval_cal_CHCl2Br ( )

6.16.1.32 subroutine jval_cal_CHClBr2 ( )

6.16.1.33 subroutine jval_cal_CHOH ( )

6.16.1.34 subroutine jval_cal_Cl2 ( )

6.16.1.35 subroutine jval_cal_Cl2O2 ( )

6.16.1.36 subroutine jval_cal_ClNO2 ( )

6.16.1.37 subroutine jval_cal_ClNO3 ( )

6.16.1.38 subroutine jval_cal_ClONO2 ( )

6.16.1.39 subroutine jval_cal_CO2 ( )

6.16.1.40 subroutine jval_cal_COH2 ( )

6.16.1.41 subroutine jval_cal_GLYOX ( )

6.16.1.42 subroutine jval_cal_H2O ( )

6.16.1.43 subroutine jval_cal_H2O2 ( )

6.16.1.44 subroutine jval_cal_H2SO4 ( )

6.16.1.45 subroutine jval_cal_HCl ( )

6.16.1.46 subroutine jval_cal_HCOOH ( )

6.16.1.47 subroutine jval_cal_HNO3 ( )

6.16.1.48 subroutine jval_cal_HNO4 ( )

6.16.1.49 subroutine jval_cal_HOBr ( )

6.16.1.50 subroutine jval_cal_HOCH2CHO ( )

6.16.1.51 subroutine jval_cal_HOCl ( )

6.16.1.52 subroutine jval_cal_HOI ( )

6.16.1.53 subroutine jval_cal_HONO ( )

6.16.1.54 subroutine jval_cal_I2 ( )

6.16.1.55 subroutine jval_cal_IBr ( )

6.16.1.56 subroutine jval_cal_ICl ( )

6.16.1.57 subroutine jval_cal_INO2 ( )

6.16.1.58 subroutine jval_cal_INO3 ( )

6.16.1.59 subroutine jval_cal_IO ( )

6.16.1.60 subroutine jval_cal_MACR ( )

6.16.1.61 subroutine jval_cal_MGLYOX ( )

6.16.1.62 subroutine jval_cal_MVK ( )

6.16.1.63 subroutine jval_cal_N2O ( )

6.16.1.64 subroutine jval_cal_N2O5 ( )

6.16.1.65 subroutine jval_cal_NO ( )

6.16.1.66 subroutine jval_cal_NO2 ( )

6.16.1.67 subroutine jval_cal_NO2O ( )

6.16.1.68 subroutine jval_cal_NOO2 ( )

6.16.1.69 subroutine jval_cal_O1D ( )

6.16.1.70 subroutine jval_cal_O2 ( )

6.16.1.71 subroutine jval_cal_O3P ( )

6.16.1.72 subroutine jval_cal_OClO ( )

6.16.1.73 subroutine jval_cal_OCS ( )

6.16.1.74 subroutine jval_cal_PAN ( )

6.16.1.75 subroutine jval_cal_SF6 ( )

6.16.1.76   subroutine jval_cal_SO2 (   )

6.16.1.77   subroutine jval_cal_SO3 (   )

6.17   /home/sander/e2/messy꞉d2.50s꞉rs/messy/mbm/caaba/messy꞉main꞉blather.f90 File Reference

Data Types

- module [messy_main_blather](#)

6.18   /home/sander/e2/messy꞉d2.50s꞉rs/messy/mbm/caaba/messy꞉main꞉constants꞉mem.f90 File Reference

Data Types

- module [messy_main_constants_mem](#)

6.19   /home/sander/e2/messy꞉d2.50s꞉rs/messy/mbm/caaba/messy꞉main꞉control꞉cb.f90 File Reference

Data Types

- module [messy_main_control_cb](#)

6.20   /home/sander/e2/messy꞉d2.50s꞉rs/messy/mbm/caaba/messy꞉main꞉rnd.f90 File Reference

Data Types

- module [messy_main_rnd](#)
- interface [messy_main_rnd::rnd_jump](#)

6.21   /home/sander/e2/messy꞉d2.50s꞉rs/messy/mbm/caaba/messy꞉main꞉rnd꞉lux.f90 File Reference

Data Types

- module [messy_main_rnd_lux](#)

6.22 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_main_rnd_mtw.f90 File Reference

Data Types

- module messy_main_rnd_mtw

6.23 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_main_rnd_mtw_ja.f90 File Reference

Data Types

- module messy_main_rnd_mtw_ja
- type messy_main_rnd_mtw_ja::gf2x_obj
- type messy_main_rnd_mtw_ja::gf2x_prime_obj
- interface messy_main_rnd_mtw_ja::new
- interface messy_main_rnd_mtw_ja::delete
- interface messy_main_rnd_mtw_ja::print_bit
- interface messy_main_rnd_mtw_ja::print_hex
- interface messy_main_rnd_mtw_ja::set_coef
- interface messy_main_rnd_mtw_ja::set_prime
- interface messy_main_rnd_mtw_ja::assign
- interface messy_main_rnd_mtw_ja::add
- interface messy_main_rnd_mtw_ja::add_assign
- interface messy_main_rnd_mtw_ja::mult
- interface messy_main_rnd_mtw_ja::mult_assign
- interface messy_main_rnd_mtw_ja::pow
- interface messy_main_rnd_mtw_ja::square
- interface messy_main_rnd_mtw_ja::mult_by_x
- interface messy_main_rnd_mtw_ja::mod_by_x
- interface messy_main_rnd_mtw_ja::div_by_x
- interface messy_main_rnd_mtw_ja::div
- interface messy_main_rnd_mtw_ja::rem
- interface messy_main_rnd_mtw_ja::divrem
- interface messy_main_rnd_mtw_ja::shift

6.24 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_main_timer.f90 File Reference

Data Types

- module messy_main_timer

- type [messy_main_timer::time_days](#)
- interface [messy_main_timer::timer_set_date](#)
- interface [messy_main_timer::timer_get_date](#)

6.25 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_main_tools.f90 File Reference

Data Types

- module [messy_main_tools](#)
- type [messy_main_tools::PTR_1D_ARRAY_INT](#)
- type [messy_main_tools::PTR_0D_ARRAY](#)
- type [messy_main_tools::PTR_1D_ARRAY](#)
- type [messy_main_tools::PTR_2D_ARRAY](#)
- type [messy_main_tools::PTR_3D_ARRAY](#)
- type [messy_main_tools::PTR_4D_ARRAY](#)
- type [messy_main_tools::PTR_5D_ARRAY](#)
- type [messy_main_tools::t_reset_par](#)
- interface [messy_main_tools::str](#)
- interface [messy_main_tools::iso2ind](#)
- interface [messy_main_tools::ind2val](#)
- interface [messy_main_tools::remap_bounds](#)
- interface [messy_main_tools::str2num](#)

6.26 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_main_tools_kp4_compress.f90 File Reference

Data Types

- module [messy_main_tools_kp4_compress](#)
- interface [messy_main_tools_kp4_compress::kco_initialize](#)
- interface [messy_main_tools_kp4_compress::kco_compress](#)
- interface [messy_main_tools_kp4_compress::kco_finalize](#)

6.27 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_mecca.f90 File Reference

Data Types

- module [messy_mecca](#)

6.28   /home/sander/e2/messy‗d2.50s‗rs/messy/mbm/caaba/messy‑ ‗mecca‗aero.f90 File Reference

Data Types

- module messy_mecca_aero

Functions/Subroutines

- subroutine mecca_aero_K_tot (K_tot)

6.28.1   Function/Subroutine Documentation

6.28.1.1   subroutine mecca_aero_calc_k_ex_ocean::mecca_aero_K_tot (REAL(dp), dimension(0:nspec), intent(out) *K‗tot* **)**   `[private]`

6.29   /home/sander/e2/messy‗d2.50s‗rs/messy/mbm/caaba/messy‑ ‗mecca‗box.f90 File Reference

Data Types

- module messy_mecca_box

Functions/Subroutines

- subroutine x0_simple
- subroutine x0_ff_antarctic
- subroutine x0_ff_arctic
- subroutine x0_hoover
- subroutine x0_free_trop
- subroutine x0_lab
- subroutine x0_mbl
- subroutine x0_mim2
- subroutine x0_oomph
- subroutine x0_isoo
- subroutine x0_strato20
- subroutine x0_strato10
- subroutine x0_mtchem
- subroutine aerosol_exchng
- subroutine check_range (infostring, conc)

6.29.1 Function/Subroutine Documentation

6.29.1.1 subroutine mecca_physc::aerosol_exchng ( )

6.29.1.2 subroutine mecca_physc::check_range (CHARACTER(LEN=∗), intent(in) *infostring,* REAL(DP), dimension(:), intent(in) *conc*)

6.29.1.3 subroutine x0::x0_ff_antarctic ( ) [private]

6.29.1.4 subroutine x0::x0_ff_arctic ( ) [private]

6.29.1.5 subroutine x0::x0_free_trop ( ) [private]

6.29.1.6 subroutine x0::x0_hoover ( ) [private]

6.29.1.7 subroutine x0::x0_isoo ( ) [private]

6.29.1.8 subroutine x0::x0_lab ( ) [private]

6.29.1.9 subroutine x0::x0_mbl ( ) [private]

6.29.1.10 subroutine x0::x0_mim2 ( ) [private]

6.29.1.11 subroutine x0::x0_mtchem ( ) [private]

6.29.1.12 subroutine x0::x0_oomph ( ) [private]

6.29.1.13 subroutine x0::x0_simple ( )

6.29.1.14 subroutine x0::x0_strato10 ( ) [private]

6.29.1.15 subroutine x0::x0_strato20 ( ) [private]

6.30 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_mecca_dbl_box.f90 File Reference

Data Types

- module messy_mecca_dbl_box

6.31 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_mecca_dbl_parameters.inc File Reference

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6.32 /home/sander/e2/messy␣d2.50s␣rs/messy/mbm/caaba/messy-␣mecca␣khet.f90 File Reference

Data Types

- module messy_mecca_khet

6.33 /home/sander/e2/messy␣d2.50s␣rs/messy/mbm/caaba/messy-␣mecca␣kpp.f90 File Reference

Data Types

- module messy_mecca_kpp

Functions/Subroutines

- subroutine kpp_read_nml_ctrl (status, iou)
- subroutine montecarlo_check

6.33.1 Function/Subroutine Documentation

6.33.1.1 subroutine initialize_kpp_ctrl::kpp_read_nml_ctrl (INTEGER, intent(out) *status,* INTEGER, intent(in) *iou*)

6.33.1.2 subroutine kpp_integrate::montecarlo_check ( )

6.34 /home/sander/e2/messy␣d2.50s␣rs/messy/mbm/caaba/messy-␣mecca␣kpp␣function.f90 File Reference

Data Types

- module messy_mecca_kpp_Function

6.35 /home/sander/e2/messy␣d2.50s␣rs/messy/mbm/caaba/messy-␣mecca␣kpp␣global.f90 File Reference

Data Types

- module messy_mecca_kpp_Global

6.36 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_mecca_kpp_initialize.f90 File Reference

Data Types

- module messy_mecca_kpp_Initialize

6.37 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_mecca_kpp_integrator.f90 File Reference

Data Types

- module messy_mecca_kpp_Integrator

Functions/Subroutines

- subroutine ros_ErrorMsg (Code, T, H, IERR)
- subroutine ros_Integrator (Y, Tstart, Tend, T,AbsTol, RelTol,
- REAL(kind=dp) function ros_ErrorNorm (Y, Ynew, Yerr, AbsTol, RelTol, VectorTol)
- subroutine ros_FunTimeDerivative (T, Roundoff, Y, Fcn0, dFdT)
- subroutine ros_PrepareMatrix (H, Direction, gam, Jac0, Ghimj, Pivot, Singular)
- subroutine ros_Decomp (A, Pivot, ising)
- subroutine ros_Solve (A, Pivot, b)
- subroutine Ros2
- subroutine Ros3
- subroutine Ros4
- subroutine Rodas3
- subroutine Rodas4

6.37.1 Function/Subroutine Documentation

6.37.1.1 subroutine Rosenbrock::Rodas3 ( )

6.37.1.2 subroutine Rosenbrock::Rodas4 ( )

#### 6.37.1.3 subroutine Rosenbrock::Ros2 ( )

6.37.1.4 subroutine Rosenbrock::Ros3 ( )

6.37.1.5 subroutine Rosenbrock::Ros4 ( )

6.37.1.6 subroutine Rosenbrock::ros_Decomp (REAL(kind=dp), dimension(lu_nonzero), intent(inout) *A,* INTEGER, dimension(n), intent(out) *Pivot,* INTEGER, intent(out) *ising*)

6.37.1.7 **subroutine Rosenbrock::ros_ErrorMsg (** INTEGER, intent(in) *Code,* REAL(kind=dp), intent(in) *T,* REAL(kind=dp), intent(in) *H,* INTEGER, intent(out) *IERR* **)**

6.37.1.8 **REAL(kind=dp) function Rosenbrock::ros_ErrorNorm (** REAL(kind=dp), dimension(n), intent(in) *Y,* REAL(kind=dp), dimension(n), intent(in) *Ynew,* REAL(kind=dp), dimension(n), intent(in) *Yerr,* REAL(kind=dp), dimension(n), intent(in) *AbsTol,* REAL(kind=dp), dimension(n), intent(in) *RelTol,* LOGICAL, intent(in) *VectorTol* **)**

6.37.1.9 **subroutine Rosenbrock::ros_FunTimeDerivative (** REAL(kind=dp), intent(in) *T,* REAL(kind=dp), intent(in) *Roundoff,* REAL(kind=dp), dimension(n), intent(in) *Y,* REAL(kind=dp), dimension(n), intent(in) *Fcn0,* REAL(kind=dp), dimension(n), intent(out) *dFdT* **)**

6.37.1.10 **subroutine Rosenbrock::ros_Integrator (** REAL(kind=dp), dimension(n), intent(inout) *Y,* REAL(kind=dp), intent(in) *Tstart,* REAL(kind=dp), intent(in) *Tend,* REAL(kind=dp), intent(out) *T,* REAL(kind=dp), dimension(n), intent(in) *AbsTol,* REAL(kind=dp), dimension(n), intent(in) *RelTol* **)**

Here is the call graph for this function:
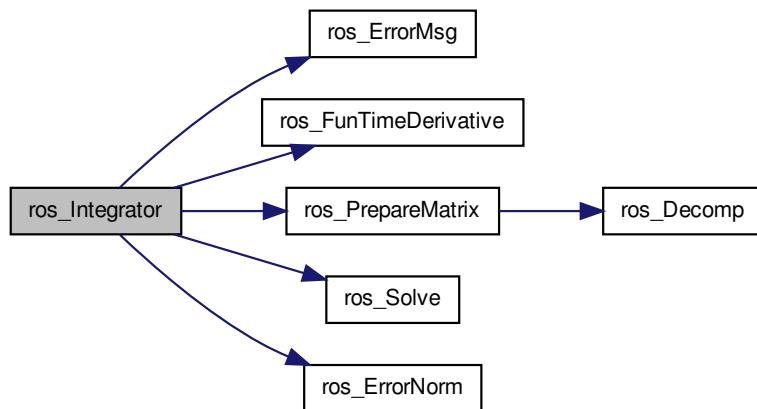
6.38 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_mecca_kpp_-
jacobian.f90 File
Reference 235

6.37.1.11 subroutine Rosenbrock::ros_PrepareMatrix (REAL(kind=dp), intent(inout)
H, INTEGER, intent(in) *Direction,* REAL(kind=dp), intent(in) *gam,* REAL(kind=dp),
dimension(lu_nonzero), intent(in) *Jac0,* REAL(kind=dp), dimension(lu_nonzero),
intent(out) *Ghimj,* INTEGER, dimension(n), intent(out) *Pivot,* LOGICAL, intent(out)
***Singular*)**

Here is the call graph for this function:
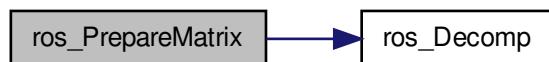
6.37.1.12 subroutine Rosenbrock::ros_Solve (REAL(kind=dp), dimension(lu_nonzero),
intent(in) *A,* INTEGER, dimension(n), intent(in) *Pivot,* REAL(kind=dp), dimension(n),
intent(inout) *b*)

6.38 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy- _mecca_kpp_jacobian.f90 File Reference

Data Types

- module messy_mecca_kpp_Jacobian

6.39 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy- _mecca_kpp_jacobiansp.f90 File Reference

Data Types

- module messy_mecca_kpp_JacobianSP

6.40 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy- _mecca_kpp_linearalgebra.f90 File Reference

Data Types

- module messy_mecca_kpp_LinearAlgebra

6.41 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_mecca_kpp_monitor.f90 File Reference

Data Types

- module messy_mecca_kpp_Monitor

6.42 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_mecca_kpp_parameters.f90 File Reference

Data Types

- module messy_mecca_kpp_Parameters

6.43 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_mecca_kpp_precision.f90 File Reference

Data Types

- module messy_mecca_kpp_Precision

6.44 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_mecca_kpp_rates.f90 File Reference

Data Types

- module messy_mecca_kpp_Rates

6.45 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_mecca_kpp_util.f90 File Reference

Data Types

- module messy_mecca_kpp_Util

6.46 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_mecca_tag_box.f90 File Reference

**6.47 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy_mecca_tag_-
parameters.inc File
Reference** **237**

Data Types

- module messy_mecca_tag_box

6.47 /home/sander/e2/messy␣d2.50s␣rs/messy/mbm/caaba/messy-␣mecca␣tag␣parameters.inc File Reference

6.48 /home/sander/e2/messy␣d2.50s␣rs/messy/mbm/caaba/messy-␣radjimt.f90 File Reference

Data Types

- module messy_radjimt

6.49 /home/sander/e2/messy␣d2.50s␣rs/messy/mbm/caaba/messy-␣radjimt␣box.f90 File Reference

Data Types

- module messy_radjimt_box

Functions/Subroutines

- subroutine allocate_arrays
- subroutine photo_mtchem

6.49.1 Function/Subroutine Documentation

6.49.1.1 subroutine **radjimt_init::allocate_arrays ( )**

6.49.1.2 subroutine radjimt_init::photo_mtchem ( ) `[private]`

Here is the call graph for this function:

```
┌──────────────────┐        ┌──────────────────┐
│  photo_mtchem    │───────▶│  allocate_arrays │
└──────────────────┘        └──────────────────┘
```

6.50 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_readj.f90 File Reference

Data Types

- module messy_readj

6.51 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_readj_box.f90 File Reference

Data Types

- module messy_readj_box

6.52 /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_sappho.f90 File Reference

Data Types

- module messy_sappho

Functions/Subroutines

- subroutine photo_ff
- subroutine photo_lab
- subroutine photo_mbl

6.52.1 Function/Subroutine Documentation

6.52.1.1 subroutine jvalues::photo_ff ( ) [private]

6.52.1.2 subroutine jvalues::photo_lab ( ) [private]

6.52.1.3 subroutine jvalues::photo_mbl ( ) [private]

6.53 /home/sander/e2/messy␣d2.50s␣rs/messy/mbm/caaba/messy-␣sappho␣box.f90 File Reference

Data Types

- module messy_sappho_box

6.54 /home/sander/e2/messy␣d2.50s␣rs/messy/mbm/caaba/messy-␣semidep␣box.f90 File Reference

Data Types

- module messy_semidep_box

Functions/Subroutines

- subroutine emission_default
- subroutine emission_mbl
- subroutine emission_lab
- subroutine emission_mim2
- subroutine emission_isoo
- subroutine emission_ff
- subroutine emission_oomph
- subroutine drydep_ff
- subroutine drydep_mbl
- subroutine drydep_lab
- subroutine drydep_mim2
- subroutine drydep_default

6.54.1 Function/Subroutine Documentation

6.54.1.1 subroutine drydep::drydep_default ( ) [private]

6.54.1.2 subroutine drydep::drydep_ff ( )

6.54.1.3 subroutine drydep::drydep_lab ( ) `[private]`

6.54.1.4 subroutine drydep::drydep_mbl ( ) `[private]`

6.54.1.5 subroutine drydep::drydep_mim2 ( ) `[private]`

6.54.1.6 subroutine emission::emission_default ( )

6.54.1.7 subroutine emission::emission_ff ( ) `[private]`

6.54.1.8 subroutine emission::emission_isoo ( ) `[private]`

6.54.1.9 subroutine emission::emission_lab ( ) `[private]`

6.54.1.10 subroutine emission::emission_mbl ( ) `[private]`

6.54.1.11 subroutine emission::emission_mim2 ( ) `[private]`

6.54.1.12 subroutine emission::emission_oomph ( ) `[private]`

6.55   /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/messy-_traject_box.f90 File Reference

Data Types

- module messy_traject_box

6.56   /home/sander/e2/messy_d2.50s_rs/messy/mbm/caaba/radjimt.nml File Reference

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