ESX testing

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3.1 File List

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Chapter 4

Module Documentation

4.1 Checkstop_ml Module Reference

Functions/Subroutines

- subroutine, public CheckStop (logic, txt)

4.1.1 Function/Subroutine Documentation

4.1.1.1 subroutine,public Checkstop_ml::CheckStop (logical,intent(in) *logic,* character(len=*) *txt*)

Definition at line 19 of file CheckStop_ml.f90.

4.2 ChemDims_ml Module Reference

Variables

- integer, parameter, public NRCT = 9
- integer, parameter, public NSPEC_TOT = 14
- integer, parameter, public NSPEC_ADV = 9
- integer, parameter, public NSPEC_SHL = 5

4.2.1 Variable Documentation

4.2.1.1 integer,parameter,public ChemDims_ml::NRCT = 9

Definition at line 3 of file CM_ChemDims_ml.f90.

4.2.1.2 integer,parameter,public ChemDims_ml::NSPEC_ADV = 9

Definition at line 3 of file CM_ChemDims_ml.f90.

4.2.1.3 integer,parameter,public ChemDims_ml::NSPEC_SHL = 5

Definition at line 3 of file CM_ChemDims_ml.f90.

4.2.1.4 integer,parameter,public ChemDims_ml::NSPEC_TOT = 14

Definition at line 3 of file CM_ChemDims_ml.f90.

4.3 ChemFunctions_ml Module Reference

Functions/Subroutines

- real, public kmt3 (tinv, airM, a1, c1, a3, c3, a4, c4, M)
- real troe (k0, kinf, Fc, M)
- real troeInLog (k0, kinf, LogFc, M)
- real IUPAC_troe (k0, kinf, Fc, M, N)
- real, public kaero (rh)

4.3.1 Function/Subroutine Documentation

4.3.1.1 real ChemFunctions_ml::IUPAC_troe (real,intent(in) *k0,* real,intent(in) *kinf,* real,intent(in) *Fc,* real,intent(in) *M,* real,intent(in) *N*) [private]

Definition at line 171 of file ChemFunctions_ml.f90.

4.3.1.2 real,public ChemFunctions_ml::kaero (real,intent(in) *rh*)

Definition at line 311 of file ChemFunctions_ml.f90.

4.3.1.3 real,public ChemFunctions_ml::kmt3 (real,intent(in) *tinv,* real,intent(in) *airM,* real,intent(in) *a1,* real,intent(in) *c1,* real,intent(in) *a3,* real,intent(in) *c3,* real,intent(in) *a4,* real,intent(in) *c4,* real,intent(in) *M*)

Definition at line 74 of file ChemFunctions_ml.f90.

4.3.1.4 real ChemFunctions_ml::troe (real,intent(in) *k0,* real,intent(in) *kinf,* real,intent(in) *Fc,* real,intent(in) *M*) [private]

Definition at line 88 of file ChemFunctions_ml.f90.

4.3.1.5 real ChemFunctions_ml::troeInLog (real,intent(in) *k0*, real,intent(in) *kinf*, real,intent(in) *LogFc*, real,intent(in) *M*) [private]

Definition at line 130 of file ChemFunctions_ml.f90.

4.4 ChemRates_ml Module Reference

MODULE Tabulates Rate-coefficients - temperature dependants into rct array.

Functions/Subroutines

- subroutine, public setchemrates ()

4.4.1 Detailed Description

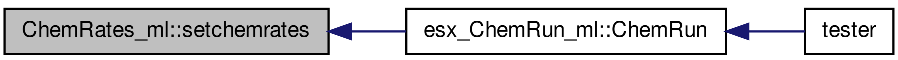
MODULE Tabulates Rate-coefficients - temperature dependants into rct array.

4.4.2 Function/Subroutine Documentation

4.4.2.1 subroutine,public ChemRates_ml::setchemrates ( )

Definition at line 28 of file CM_ChemRates_ml.f90.

Here is the caller graph for this function:



4.5 ChemSolver_ml Module Reference

Functions/Subroutines

- subroutine, public chemsolve (xn, Dchem, debug_flag, itern)
- subroutine makedt (dti, nchem, coeff1, coeff2, cc)

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Variables

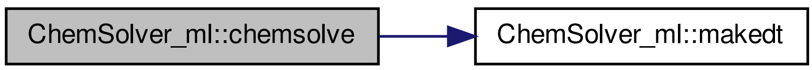
- integer, parameter nchemMAX = 1200
- integer, parameter NUM_INITCHEM = 5
- real, save DT_INITCHEM = 1.0
- integer, parameter EXTRA_ITER = 1

4.5.1 Function/Subroutine Documentation

4.5.1.1 subroutine,public ChemSolver_ml::chemsolve (real,dimension(:),intent(inout) *xn*, real,dimension(:),intent(inout) *Dchem*, logical,intent(in) *debug_flag*, integer,intent(in),optional *itern*)

Definition at line 80 of file ChemSolver_ml.f90.

Here is the call graph for this function:



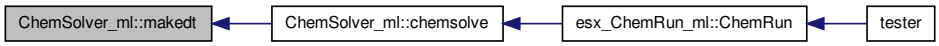
Here is the caller graph for this function:

4.5.1.2 subroutine ChemSolver_ml::makedt (real,dimension(nchemmax),intent(out) *dti*, integer,intent(out) *nchem*, real,dimension(nchemmax),intent(out) *coeff1*, real,dimension(nchemmax),intent(out) *coeff2*, real,dimension(nchemmax),intent(out) *cc*) [private]

>>>

Definition at line 246 of file ChemSolver_ml.f90.

Here is the caller graph for this function:



4.5.2 Variable Documentation

4.5.2.1 real,save ChemSolver_ml::DT_INITCHEM = 1.0

Definition at line 71 of file ChemSolver_ml.f90.

4.5.2.2 integer,parameter ChemSolver_ml::EXTRA_ITER = 1

Definition at line 72 of file ChemSolver_ml.f90.

4.5.2.3 integer,parameter ChemSolver_ml::nchemMAX = 1200

Definition at line 68 of file ChemSolver_ml.f90.

4.5.2.4 integer,parameter ChemSolver_ml::NUM_INITCHEM = 5

Definition at line 69 of file ChemSolver_ml.f90.

4.6 ChemSpecs_ml Module Reference

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Data Types

- type Chemical

Functions/Subroutines

- subroutine, public define_chemicals ()

Variables

- integer, parameter, public NAEROSOL = 0
- integer, parameter, public FIRST_SEMIVOL = -999
- integer, parameter, public LAST_SEMIVOL = -999
- integer, parameter, public OD = 1
- integer, parameter, public OP = 2
- integer, parameter, public OH = 3
- integer, parameter, public HO2 = 4
- integer, parameter, public RO2 = 5
- integer, parameter, public O3 = 6
- integer, parameter, public NO = 7
- integer, parameter, public NO2 = 8
- integer, parameter, public HNO3 = 9
- integer, parameter, public VOC = 10
- integer, parameter, public CH3CHO = 11
- integer, parameter, public PAN = 12
- integer, parameter, public CH3COO2 = 13
- integer, parameter, public CO = 14
- integer, parameter, public IXADV_O3 = 1
- integer, parameter, public IXADV_NO = 2
- integer, parameter, public IXADV_NO2 = 3
- integer, parameter, public IXADV_HNO3 = 4
- integer, parameter, public IXADV_VOC = 5
- integer, parameter, public IXADV_CH3CHO = 6
- integer, parameter, public IXADV_PAN = 7
- integer, parameter, public IXADV_CH3COO2 = 8
- integer, parameter, public IXADV_CO = 9
- integer, parameter, public IXSHL_OD = 1
- integer, parameter, public IXSHL_OP = 2
- integer, parameter, public IXSHL_OH = 3
- integer, parameter, public IXSHL_HO2 = 4
- integer, parameter, public IXSHL_RO2 = 5
- type(Chemical), dimension(nspec_tot), target, public species
- type(Chemical), dimension(:), pointer, public species_shl => null()
- type(Chemical), dimension(:), pointer, public species_adv => null()

4.6.1 Detailed Description

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4.6.2 Function/Subroutine Documentation

4.6.2.1 subroutine,public ChemSpecs_ml::define_chemicals ( )

Definition at line 104 of file CM_ChemSpecs_ml.f90.

4.6.3 Variable Documentation

4.6.3.1 integer,parameter,public ChemSpecs_ml::CH3CHO = 11

Definition at line 35 of file CM_ChemSpecs_ml.f90.

4.6.3.2 integer,parameter,public ChemSpecs_ml::CH3COO2 = 13

Definition at line 35 of file CM_ChemSpecs_ml.f90.

4.6.3.3 integer,parameter,public ChemSpecs_ml::CO = 14

Definition at line 35 of file CM_ChemSpecs_ml.f90.

4.6.3.4 integer,parameter,public ChemSpecs_ml::FIRST_SEMIVOL = -999

Definition at line 17 of file CM_ChemSpecs_ml.f90.

4.6.3.5 integer,parameter,public ChemSpecs_ml::HNO3 = 9

Definition at line 24 of file CM_ChemSpecs_ml.f90.

4.6.3.6 integer,parameter,public ChemSpecs_ml::HO2 = 4

Definition at line 24 of file CM_ChemSpecs_ml.f90.

4.6.3.7 integer,parameter,public ChemSpecs_ml::IXADV_CH3CHO = 6

Definition at line 52 of file CM_ChemSpecs_ml.f90.

4.6.3.8 integer,parameter,public ChemSpecs_ml::IXADV_CH3COO2 = 8

Definition at line 52 of file CM_ChemSpecs_ml.f90.

4.6.3.9 integer,parameter,public ChemSpecs_ml::IXADV_CO = 9

Definition at line 52 of file CM_ChemSpecs_ml.f90.

4.6.3.10 integer,parameter,public ChemSpecs_ml::IXADV_HNO3 = 4

Definition at line 52 of file CM_ChemSpecs_ml.f90.

4.6.3.11 integer,parameter,public ChemSpecs_ml::IXADV_NO = 2

Definition at line 52 of file CM_ChemSpecs_ml.f90.

4.6.3.12 integer,parameter,public ChemSpecs_ml::IXADV_NO2 = 3

Definition at line 52 of file CM_ChemSpecs_ml.f90.

4.6.3.13 integer,parameter,public ChemSpecs_ml::IXADV_O3 = 1

Definition at line 52 of file CM_ChemSpecs_ml.f90.

4.6.3.14 integer,parameter,public ChemSpecs_ml::IXADV_PAN = 7

Definition at line 52 of file CM_ChemSpecs_ml.f90.

4.6.3.15 integer,parameter,public ChemSpecs_ml::IXADV_VOC = 5

Definition at line 52 of file CM_ChemSpecs_ml.f90.

4.6.3.16 integer,parameter,public ChemSpecs_ml::IXSHL_HO2 = 4

Definition at line 73 of file CM_ChemSpecs_ml.f90.

4.6.3.17 integer,parameter,public ChemSpecs_ml::IXSHL_OD = 1

Definition at line 73 of file CM_ChemSpecs_ml.f90.

4.6.3.18 integer,parameter,public ChemSpecs_ml::IXSHL_OH = 3

Definition at line 73 of file CM_ChemSpecs_ml.f90.

4.6.3.19 integer,parameter,public ChemSpecs_ml::IXSHL_OP = 2

Definition at line 73 of file CM_ChemSpecs_ml.f90.

4.6.3.20 integer,parameter,public ChemSpecs_ml::IXSHL_RO2 = 5

Definition at line 73 of file CM_ChemSpecs_ml.f90.

4.6.3.21 integer,parameter,public ChemSpecs_ml::LAST_SEMIVOL = -999

Definition at line 17 of file CM_ChemSpecs_ml.f90.

4.6.3.22 integer,parameter,public ChemSpecs_ml::NAEROSOL = 0

Definition at line 17 of file CM_ChemSpecs_ml.f90.

4.6.3.23 integer,parameter,public ChemSpecs_ml::NO = 7

Definition at line 24 of file CM_ChemSpecs_ml.f90.

4.6.3.24 integer,parameter,public ChemSpecs_ml::NO2 = 8

Definition at line 24 of file CM_ChemSpecs_ml.f90.

4.6.3.25 integer,parameter,public ChemSpecs_ml::O3 = 6

Definition at line 24 of file CM_ChemSpecs_ml.f90.

4.6.3.26 integer,parameter,public ChemSpecs_ml::OD = 1

Definition at line 24 of file CM_ChemSpecs_ml.f90.

4.6.3.27 integer,parameter,public ChemSpecs_ml::OH = 3

Definition at line 24 of file CM_ChemSpecs_ml.f90.

4.6.3.28 integer,parameter,public ChemSpecs_ml::OP = 2

Definition at line 24 of file CM_ChemSpecs_ml.f90.

4.6.3.29 integer,parameter,public ChemSpecs_ml::PAN = 12

Definition at line 35 of file CM_ChemSpecs_ml.f90.

4.6.3.30 integer,parameter,public ChemSpecs_ml::RO2 = 5

Definition at line 24 of file CM_ChemSpecs_ml.f90.

4.6.3.31 type(Chemical),dimension(nspec_tot),target,public ChemSpecs_ml::species

Definition at line 98 of file CM_ChemSpecs_ml.f90.

4.6.3.32 type(Chemical),dimension(:),pointer,public ChemSpecs_ml::species_adv = >null()

Definition at line 99 of file CM_ChemSpecs_ml.f90.

4.6.3.33 type(Chemical),dimension(:),pointer,public ChemSpecs_ml::species_shl = >null()

Definition at line 99 of file CM_ChemSpecs_ml.f90.

4.6.3.34 integer,parameter,public ChemSpecs_ml::VOC = 10

Definition at line 35 of file CM_ChemSpecs_ml.f90.

4.7 DefPhotolysis_ml Module Reference

Data Types

- type mcmdj

Functions/Subroutines

- subroutine, public setphotorates (time)
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Variables

- integer, parameter, public NRCPHOT = 35
- real, dimension(nrcphot), save, public rcphot = 0.0
- integer, parameter, public IDAO3 = 2
- integer, parameter, public IDBO3 = 1
- integer, parameter, public IDNO2 = 4
- integer, parameter, public IDH2O2 = 3
- integer, parameter, public IDHNO3 = 8
- integer, parameter, public IDACH2O = 11
- integer, parameter, public IDBCH2O = 12
- integer, parameter, public IDCH3CHO = 13
- integer, parameter, public IDCH3COX = 22
- integer, parameter, public IDCH3COY = -1

- integer, parameter, public IDHCOHCO = -1
- integer, parameter, public IDRCOHCO = 34
- integer, parameter, public IDANO3 = 6
- integer, parameter, public IDN2O5 = -1
- integer, parameter, public IDCH3O2H = 41
- integer, parameter, public IDHO2NO2 = 16
- integer, parameter, public IDACETON = 17
- integer, parameter, public IDAGLYOX = 31
- integer, parameter, public IDBGLYOX = 32
- integer, parameter, public IDCGLYOX = 33
- integer, parameter, public IDBNO3 = 5
- integer, parameter, public IDRCOCHO = IDRCOHCO
- type(mcmdj), dimension(35) dj = (/ mcmdj(1, 6.073E-05, 1.743, 0.474, 1.295E-06) ,mcmdj(2, 4.775E-04, 0.298, 0.080, 2.482E-04) ,mcmdj(3, 1.041E-05, 0.723, 0.279, 1.581E-06) ,mcmdj(4, 1.165E-02, 0.244, 0.267, 3.364E-03) ,mcmdj(5, 2.485E-02, 0.168, 0.108, 1.378E-02) ,mcmdj(6, 1.747E-01, 0.155, 0.125, 9.280E-02) ,mcmdj(7, 2.644E-03, 0.261, 0.288, 6.944E-04) ,mcmdj(8, 9.312E-07, 1.230, 0.307, 6.785E-08) ,mcmdj(11, 4.642E-05, 0.762, 0.353, 5.178E-06) ,mcmdj(12, 6.853E-05, 0.477, 0.323, 1.214E-05) ,mcmdj(13, 7.344E-06, 1.202, 0.417, 3.769E-07) ,mcmdj(14, 2.879E-05, 1.067, 0.358, 2.152E-06) ,mcmdj(15, 2.792E-05, 0.805, 0.338, 3.110E-06) ,mcmdj(16, 1.675E-05, 0.805, 0.338, 1.866E-06) ,mcmdj(17, 7.914E-05, 0.764, 0.364, 8.472E-06) ,mcmdj(18, 1.140E-05, 0.396, 0.298, 2.440E-06) ,mcmdj(19, 1.140E-05, 0.396, 0.298, 2.440E-06) ,mcmdj(21, 7.992E-07, 1.578, 0.271, 4.270E-08) ,mcmdj(22, 5.804E-06, 1.092, 0.377, 3.934E-07) ,mcmdj(23, 1.836E-05, 0.395, 0.296, 3.963E-06) ,mcmdj(24, 1.836E-05, 0.395, 0.296, 3.963E-06) ,mcmdj(31, 6.845E-05, 0.130, 0.201, 2.874E-05) ,mcmdj(32, 1.032E-05, 0.130, 0.201, 4.333E-06) ,mcmdj(33, 3.802E-05, 0.644, 0.312, 5.678E-06) ,mcmdj(34, 1.537E-04, 0.170, 0.208, 5.989E-05) ,mcmdj(35, 3.326E-04, 0.148, 0.215, 1.300E-04) ,mcmdj(41, 7.649E-06, 0.682, 0.279, 1.223E-06) ,mcmdj(51, 1.588E-06, 1.154, 0.318, 1.225E-07) ,mcmdj(52, 1.907E-06, 1.244, 0.335, 1.238E-07) ,mcmdj(53, 2.485E-06, 1.196, 0.328, 1.756E-07) ,mcmdj(54, 4.095E-06, 1.111, 0.316, 3.357E-07) ,mcmdj(55, 1.135E-05, 0.974, 0.309, 1.132E-06) ,mcmdj(56, 7.549E-06, 1.015, 0.324, 6.787E-07) ,mcmdj(57, 3.363E-06, 1.296, 0.322, 2.140E-07) ,mcmdj(61, 7.537E-04, 0.499, 0.266, 1.586E-04) /)

4.7.1 Function/Subroutine Documentation

4.7.1.1 subroutine,public DefPhotolysis_ml::setphotorates (real,intent(in) *time*)

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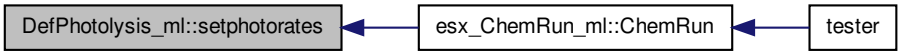
Definition at line 88 of file DefPhotolysis_ml.f90.

Here is the caller graph for this function:



4.7.2 Variable Documentation

4.7.2.1 type(mcmdj),dimension(35) DefPhotolysis_ml::dj = (/ mcmdj(1, 6.073E-05, 1.743, 0.474, 1.295E-06) ,mcmdj(2, 4.775E-04, 0.298, 0.080, 2.482E-04) ,mcmdj(3, 1.041E-05, 0.723, 0.279, 1.581E-06) ,mcmdj(4, 1.165E-02, 0.244, 0.267, 3.364E-03) ,mcmdj(5, 2.485E-02, 0.168, 0.108, 1.378E-02) ,mcmdj(6, 1.747E-01, 0.155, 0.125, 9.280E-02) ,mcmdj(7, 2.644E-03, 0.261, 0.288, 6.944E-04) ,mcmdj(8, 9.312E-07, 1.230, 0.307, 6.785E-08) ,mcmdj(11, 4.642E-05, 0.762, 0.353, 5.178E-06) ,mcmdj(12, 6.853E-05, 0.477, 0.323, 1.214E-05) ,mcmdj(13, 7.344E-06, 1.202, 0.417, 3.769E-07) ,mcmdj(14, 2.879E-05, 1.067, 0.358, 2.152E-06) ,mcmdj(15, 2.792E-05, 0.805, 0.338, 3.110E-06) ,mcmdj(16, 1.675E-05, 0.805, 0.338, 1.866E-06) ,mcmdj(17, 7.914E-05, 0.764, 0.364, 8.472E-06) ,mcmdj(18, 1.140E-05, 0.396, 0.298, 2.440E-06) ,mcmdj(19, 1.140E-05, 0.396, 0.298, 2.440E-06) ,mcmdj(21, 7.992E-07, 1.578, 0.271, 4.270E-08) ,mcmdj(22, 5.804E-06, 1.092, 0.377, 3.934E-07) ,mcmdj(23, 1.836E-05, 0.395, 0.296, 3.963E-06) ,mcmdj(24, 1.836E-05, 0.395, 0.296, 3.963E-06) ,mcmdj(31, 6.845E-05, 0.130, 0.201, 2.874E-05) ,mcmdj(32, 1.032E-05, 0.130, 0.201, 4.333E-06) ,mcmdj(33, 3.802E-05, 0.644, 0.312, 5.678E-06) ,mcmdj(34, 1.537E-04, 0.170, 0.208, 5.989E-05) ,mcmdj(35, 3.326E-04, 0.148, 0.215, 1.300E-04) ,mcmdj(41, 7.649E-06, 0.682, 0.279, 1.223E-06) ,mcmdj(51, 1.588E-06, 1.154, 0.318, 1.225E-07) ,mcmdj(52, 1.907E-06, 1.244, 0.335, 1.238E-07) ,mcmdj(53, 2.485E-06, 1.196, 0.328, 1.756E-07) ,mcmdj(54, 4.095E-06, 1.111, 0.316, 3.357E-07) ,mcmdj(55, 1.135E-05, 0.974, 0.309, 1.132E-06) ,mcmdj(56, 7.549E-06, 1.015, 0.324, 6.787E-07) ,mcmdj(57, 3.363E-06, 1.296, 0.322, 2.140E-07) ,mcmdj(61, 7.537E-04, 0.499, 0.266, 1.586E-04) /)

Definition at line 47 of file DefPhotolysis_ml.f90.

4.7.2.2 integer,parameter,public DefPhotolysis_ml::IDACETON = 17

Definition at line 23 of file DefPhotolysis_ml.f90.

4.7.2.3 integer,parameter,public DefPhotolysis_ml::IDACH2O = 11

Definition at line 23 of file DefPhotolysis_ml.f90.

4.7.2.4 integer,parameter,public DefPhotolysis_ml::IDAGLYOX = 31

Definition at line 23 of file DefPhotolysis_ml.f90.

4.7.2.5 integer,parameter,public DefPhotolysis_ml::IDANO3 = 6

Definition at line 23 of file DefPhotolysis_ml.f90.

4.7.2.6 integer,parameter,public DefPhotolysis_ml::IDAO3 = 2

Definition at line 23 of file DefPhotolysis_ml.f90.

4.7.2.7 integer,parameter,public DefPhotolysis_ml::IDBCH2O = 12

Definition at line 23 of file DefPhotolysis_ml.f90.

4.7.2.8 integer,parameter,public DefPhotolysis_ml::IDBGLYOX = 32

Definition at line 23 of file DefPhotolysis_ml.f90.

4.7.2.9 integer,parameter,public DefPhotolysis_ml::IDBNO3 = 5

Definition at line 23 of file DefPhotolysis_ml.f90.

4.7.2.10 integer,parameter,public DefPhotolysis_ml::IDBO3 = 1

Definition at line 23 of file DefPhotolysis_ml.f90.

4.7.2.11 integer,parameter,public DefPhotolysis_ml::IDCGLYOX = 33

Definition at line 23 of file DefPhotolysis_ml.f90.

4.7.2.12 integer,parameter,public DefPhotolysis_ml::IDCH3CHO = 13

Definition at line 23 of file DefPhotolysis_ml.f90.

4.7.2.13 integer,parameter,public DefPhotolysis_ml::IDCH3COX = 22

Definition at line 23 of file DefPhotolysis_ml.f90.

4.7.2.14 integer,parameter,public DefPhotolysis_ml::IDCH3COY = -1

Definition at line 23 of file DefPhotolysis_ml.f90.

4.7.2.15 integer,parameter,public DefPhotolysis_ml::IDCH3O2H = 41

Definition at line 23 of file DefPhotolysis_ml.f90.

4.7.2.16 integer,parameter,public DefPhotolysis_ml::IDH2O2 = 3

Definition at line 23 of file DefPhotolysis_ml.f90.

4.7.2.17 integer,parameter,public DefPhotolysis_ml::IDHCOHCO = -1

Definition at line 23 of file DefPhotolysis_ml.f90.

4.7.2.18 integer,parameter,public DefPhotolysis_ml::IDHNO3 = 8

Definition at line 23 of file DefPhotolysis_ml.f90.

4.7.2.19 integer,parameter,public DefPhotolysis_ml::IDHO2NO2 = 16

Definition at line 23 of file DefPhotolysis_ml.f90.

4.7.2.20 integer,parameter,public DefPhotolysis_ml::IDN2O5 = -1

Definition at line 23 of file DefPhotolysis_ml.f90.

4.7.2.21 integer,parameter,public DefPhotolysis_ml::IDNO2 = 4

Definition at line 23 of file DefPhotolysis_ml.f90.

4.7.2.22 integer,parameter,public DefPhotolysis_ml::IDRCOCHO = IDRCOHCO

Definition at line 33 of file DefPhotolysis_ml.f90.

4.7.2.23 integer,parameter,public DefPhotolysis_ml::IDRCOHCO = 34

Definition at line 23 of file DefPhotolysis_ml.f90.

4.7.2.24 integer,parameter,public DefPhotolysis_ml::NRCPHOT = 35

Definition at line 13 of file DefPhotolysis_ml.f90.

4.7.2.25 real,dimension(nrcphot),save,public DefPhotolysis_ml::rcphot = 0.0

Definition at line 17 of file DefPhotolysis_ml.f90.

4.8 esx_ChemRun_ml Module Reference

Functions/Subroutines

- subroutine, public ChemRun ()

Variables

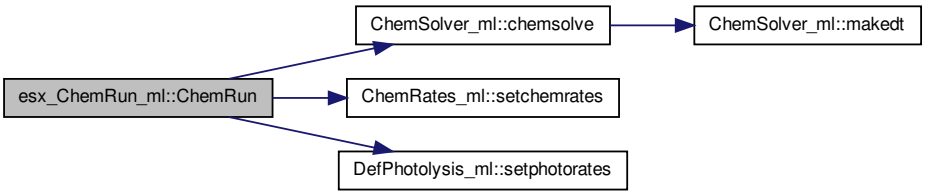
- real ppb = 2.5e10
- integer, dimension(6) out_specs = (/ NO, NO2, O3, OH, HO2, RO2 /)

4.8.1 Function/Subroutine Documentation

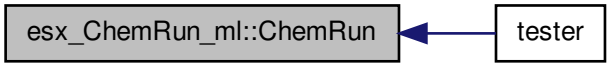
4.8.1.1 subroutine,public esx_ChemRun_ml::ChemRun ( )

Definition at line 20 of file esx_ChemRun_ml.f90.

Here is the call graph for this function:



Here is the caller graph for this function:



4.8.2 Variable Documentation

4.8.2.1 integer,dimension(6) esx_ChemRun_ml::out_specs = (/ NO, NO2, O3, OH, HO2, RO2 /)

Definition at line 14 of file esx_ChemRun_ml.f90.

4.8.2.2 real esx_ChemRun_ml::ppb = 2.5e10

Definition at line 13 of file esx_ChemRun_ml.f90.

4.9 esx_Zchem_ml Module Reference

Functions/Subroutines

- subroutine, public init_zchem (errmsg)

Variables

- logical, save, public first_call = .true.
- integer, save, public ncalls = 0
- real, dimension(:), allocatable, save, public M
- real, dimension(:), allocatable, save, public n2
- real, dimension(:), allocatable, save, public o2
- real, dimension(:), allocatable, save, public h2o
- real, dimension(:), allocatable, save, public lt300
- real, dimension(:), allocatable, save, public tinv
- real, dimension(:,:), allocatable, save, public rct
- real, dimension(:,:), allocatable, save, public rcemis
- real, allocatable, save, public xChem
- real, allocatable, save, public DChem

4.9.1 Function/Subroutine Documentation

4.9.1.1 subroutine,public esx_Zchem_ml::init_zchem (character(len=*),intent(inout) *errmsg*)

Definition at line 38 of file esx_Zchem_ml.f90.

4.9.2 Variable Documentation

4.9.2.1 real,allocatable,save,public esx_Zchem_ml::DChem

Definition at line 34 of file esx_Zchem_ml.f90.

4.9.2.2 logical,save,public esx_Zchem_ml::first_call = .true.

Definition at line 11 of file esx_Zchem_ml.f90.

4.9.2.3 real,dimension(:),allocatable,save,public esx_Zchem_ml::h2o

Definition at line 16 of file esx_Zchem_ml.f90.

4.9.2.4 real,dimension(:),allocatable,save,public esx_Zchem_ml::lt300

Definition at line 16 of file esx_Zchem_ml.f90.

4.9.2.5 real,dimension(:),allocatable,save,public esx_Zchem_ml::M

Definition at line 16 of file esx_Zchem_ml.f90.

4.9.2.6 real,dimension(:),allocatable,save,public esx_Zchem_ml::n2

Definition at line 16 of file esx_Zchem_ml.f90.

4.9.2.7 integer,save,public esx_Zchem_ml::ncalls = 0

Definition at line 12 of file esx_Zchem_ml.f90.

4.9.2.8 real,dimension(:),allocatable,save,public esx_Zchem_ml::o2

Definition at line 16 of file esx_Zchem_ml.f90.

4.9.2.9 real,dimension(:,:),allocatable,save,public esx_Zchem_ml::rcemis

Definition at line 32 of file esx_Zchem_ml.f90.

4.9.2.10 real,dimension(:,:),allocatable,save,public esx_Zchem_ml::rct

Definition at line 31 of file esx_Zchem_ml.f90.

4.9.2.11 real,dimension(:),allocatable,save,public esx_Zchem_ml::tinv

Definition at line 16 of file esx_Zchem_ml.f90.

4.9.2.12 real,allocatable,save,public esx_Zchem_ml::xChem

Definition at line 33 of file esx_Zchem_ml.f90.

4.10 esx_ZdiffSolver_ml Module Reference

MODULE Solves vertical diffusion in ESX system.

Functions/Subroutines

- subroutine, public ZdiffSolver (nz, dti, Vd, Ve, D, E, Fb, Ft, concn, fixedBC, debug)
- real, dimension(size(u)), private inv_3diag (U, M, L, R)

  start solution

4.10.1 Detailed Description

MODULE Solves vertical diffusion in ESX system. Juha-Pekka Tuovinen and David Simpson 2013

4.10.2 Function/Subroutine Documentation

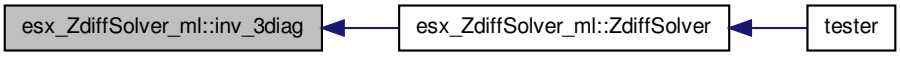
4.10.2.1 real,dimension(size(u)),private esx_ZdiffSolver_ml::inv_3diag (real,dimension(:),intent(in) *U,* real,dimension(:),intent(in) *M,* real,dimension(:),intent(in) *L,* real,dimension(:),intent(in) *R*) [private]

start solution

3-diagonal matrix ---start time integration--- >>right-hand side: >testing:

Definition at line 156 of file esx_ZdiffSolver.f90.

Here is the caller graph for this function:



4.10.2.2 subroutine,public esx_ZdiffSolver_ml::ZdiffSolver (integer,intent(in) *nz,* real,intent(in) *dti,* real,intent(in) *Vd,* real,intent(in) *Ve,* real,dimension(nz),intent(in) *D,* real,dimension(nz),intent(in) *E,* real,intent(in) *Fb,* real,intent(in) *Ft,* real,dimension(nz),intent(inout) *concn,* logical,intent(in) *fixedBC,* logical,intent(inout) *debug*)

Definition at line 20 of file esx_ZdiffSolver.f90.

Here is the call graph for this function:

Here is the caller graph for this function:

4.11 esx_Zgrid_ml Module Reference

Definition of z-layer variables, e.g. dzmid,.

Functions/Subroutines

- subroutine, public init_zgrid (zin)

  layer height between grid points: dz_1½, dz_2½,..., dz_n-½
- subroutine, public test_zgrid (ionum)

  code to test zgrid routines in this module

Variables

- integer, save, public nzlev = nz for short

4.11.1 Detailed Description

Definition of z-layer variables, e.g. dzmid,.

4.11.2 Function/Subroutine Documentation

4.11.2.1 subroutine,public esx_Zgrid_ml::init_zgrid (real,dimension(:),intent(in) *zin*)

layer height between grid points: dz_1½, dz_2½,..., dz_n-½

Definition at line 25 of file esx_Zgrid_ml.f90.

Here is the caller graph for this function:

4.11.2.2 subroutine,public esx_Zgrid_ml::test_zgrid (integer,intent(in) *ionum*)

code to test zgrid routines in this module

Definition at line 48 of file esx_Zgrid_ml.f90.

Here is the call graph for this function:

4.11.3 Variable Documentation

4.11.3.1 integer,save,public esx_Zgrid_ml::nzlev = nz for short

Definition at line 12 of file esx_Zgrid_ml.f90.

4.12 esx_Zmet_ml Module Reference

module esx_Zmet_ml

Functions/Subroutines

- subroutine, public init_Zmet (z)
- subroutine, public test_zmet (ionum)

  Initialise for test.

Variables

- logical, save, public first_call = .true.
- real, save, public psurf = 1.0e5
- real, save, public t2 = 285.0
- real, save, public rh2 = 0.6
- real, dimension(:), allocatable, save, public rhz
- real, dimension(:), allocatable, save, public pz
- real, dimension(:), allocatable, save, public tzK

4.12.1 Detailed Description

module esx_Zmet_ml Definition of z-layer meteorology We assign some initial values to simplify testing

4.12.2 Function/Subroutine Documentation

4.12.2.1 subroutine,public esx_Zmet_ml::init_Zmet (real,dimension(:),intent(in) *z*)

Definition at line 26 of file esx_Zmet_ml.f90.

Here is the caller graph for this function:

4.12.2.2 subroutine,public esx_Zmet_ml::test_zmet (integer,intent(in) *ionum*)

Initialise for test.

Simple test. Not much should go wrong though (flw).

Definition at line 44 of file esx_Zmet_ml.f90.

Here is the call graph for this function:

4.12.3 Variable Documentation

4.12.3.1 logical,save,public esx_Zmet_ml::first_call = .true.

Definition at line 14 of file esx_Zmet_ml.f90.

4.12.3.2 real,save,public esx_Zmet_ml::psurf = 1.0e5

Definition at line 16 of file esx_Zmet_ml.f90.

4.12.3.3 real,dimension(:),allocatable,save,public esx_Zmet_ml::pz

Definition at line 18 of file esx_Zmet_ml.f90.

4.12.3.4 real,save,public esx_Zmet_ml::rh2 = 0.6

Definition at line 16 of file esx_Zmet_ml.f90.

4.12.3.5 real,dimension(:),allocatable,save,public esx_Zmet_ml::rhz

Definition at line 18 of file esx_Zmet_ml.f90.

4.12.3.6 real,save,public esx_Zmet_ml::t2 = 285.0

Definition at line 16 of file esx_Zmet_ml.f90.

4.12.3.7 real,dimension(:),allocatable,save,public esx_Zmet_ml::tzK

Definition at line 18 of file esx_Zmet_ml.f90.

4.13 esx_Zveg_ml Module Reference

MODULE Definition of leaf area variables: nhVeg, dLAI(z), cumLAI(z) gsto, gns, PAR. LAI - conversion from JP matlab routines, May 2013. (minor changes)

Functions/Subroutines

- subroutine, public init_Zveg (hVeg, LAI, io)

  init_Zchem allocates the LAI-associated variables based upon the values of the z array, hVeg, and LAI
- real, save, private beta (x, y)

  beta function, derived using fortran gamma function. (see wikipedia)
- subroutine, public def_beta_leaf_area (LAI, hVeg, a, b)
- subroutine, public def_gleaf (PARz, gMax, alfa)

  def_gleaf defines stomatal and non-stomatal conductance values of the z array, hVeg, and LAI. Very simple!!! To be replaced by DO3SE options..
- real, dimension(size(cumlaiz)), public def_rad_prof (I, cumLAIz, kRad, theta)

  Simple radiation profile in canopy.
- subroutine, public test_Zveg (io)

  testing code. Just call to run init_Zveg with some typical values.

Variables

- real, save, private beta_a = 10.0
- real, save, private beta_b = 4.0
- real, save, private beta
- real, save, private parameters
- real, save, private default
- integer, save, public nhVeg
- integer, save, public no
- integer, save, public of
- integer, save, public canopy
- integer, save, public layers
- real, dimension(:), allocatable, public dLAI
- real, dimension(:), allocatable, public cumLAI
- real, dimension(:), allocatable, public PARz
- real, dimension(:), allocatable, public gsto
- real, dimension(:), allocatable, public gns
- real, dimension(:), allocatable, public non
- real, dimension(:), allocatable, public stomatal
- real, dimension(here for now), allocatable, public conductance

4.13.1 Detailed Description

MODULE Definition of leaf area variables: nhVeg, dLAI(z), cumLAI(z) gsto, gns, PAR. LAI - conversion from JP matlab routines, May 2013. (minor changes) David Simpson and Juha-Pekka Tuovinen

4.13.2 Function/Subroutine Documentation

4.13.2.1 real,save,private esx_Zveg_ml::beta (real,intent(in) *x,* real,intent(in) *y*) [private]

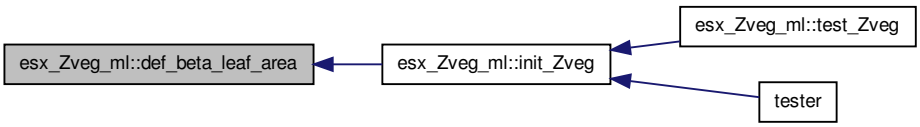
beta function, derived using fortran gamma function. (see wikipedia)

Definition at line 69 of file esx_Zveg_ml.f90.

4.13.2.2 subroutine,public esx_Zveg_ml::def_beta_leaf_area (real,intent(in) *LAI,* real,intent(in) *hVeg,* real,intent(in) *a,* real,intent(in) *b*)

Definition at line 76 of file esx_Zveg_ml.f90.

Here is the caller graph for this function:



4.13.2.3 subroutine,public esx_Zveg_ml::def_gleaf (real,dimension(:),intent(in) *PARz,* real,intent(in) *gMax,* real,intent(in) *alfa*)

def_gleaf defines stomatal and non-stomatal conductance values of the z array, hVeg, and LAI. Very simple!!! To be replaced by DO3SE options..

Definition at line 121 of file esx_Zveg_ml.f90.

Here is the caller graph for this function:

4.13.2.4 real,dimension(size(cumlaiz)),public esx_Zveg_ml::def_rad_prof (real,intent(in) *I,* real,dimension(:),intent(in) *cumLAIz,* real,intent(in) *kRad,* real,intent(in) *theta*)

Simple radiation profile in canopy.

Parameters

in	*PAR,kRad,the*	
out	*PARz*	

Definition at line 143 of file esx_Zveg_ml.f90.

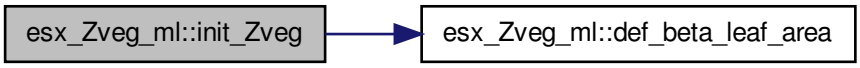
Here is the caller graph for this function:

4.13.2.5 subroutine,public esx_Zveg_ml::init_Zveg (real,intent(in) *hVeg,* real,intent(in) *LAI,* integer,intent(in),optional *io*)

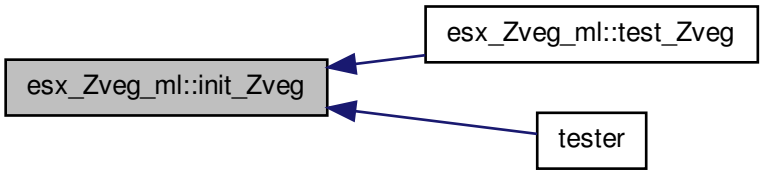
init_Zchem allocates the LAI-associated variables based upon the values of the z array, hVeg, and LAI

Definition at line 40 of file esx_Zveg_ml.f90.

Here is the call graph for this function:



Here is the caller graph for this function:

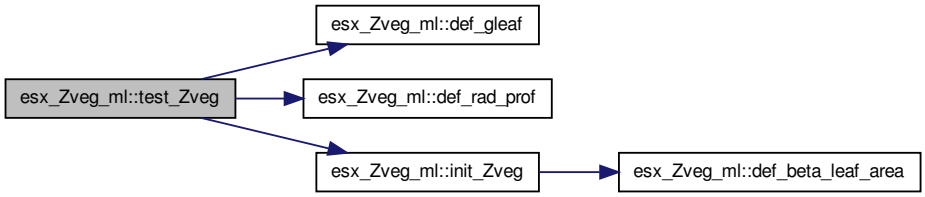


4.13.2.6 subroutine,public esx_Zveg_ml::test_Zveg (integer,intent(in) *io*)

testing code. Just call to run init_Zveg with some typical values.

Definition at line 160 of file esx_Zveg_ml.f90.

Here is the call graph for this function:



4.13.3 Variable Documentation

4.13.3.1 real,save,private esx_Zveg_ml::beta

Definition at line 22 of file esx_Zveg_ml.f90.

4.13.3.2 real,save,private esx_Zveg_ml::beta_a = 10.0

Definition at line 22 of file esx_Zveg_ml.f90.

4.13.3.3 real,save,private esx_Zveg_ml::beta_b = 4.0

Definition at line 22 of file esx_Zveg_ml.f90.

4.13.3.4 integer,save,public esx_Zveg_ml::canopy

Definition at line 26 of file esx_Zveg_ml.f90.

4.13.3.5 real,dimension (here for now),allocatable,public esx_Zveg_ml::conductance

Definition at line 28 of file esx_Zveg_ml.f90.

4.13.3.6 real,dimension(:),allocatable,public esx_Zveg_ml::cumLAI

Definition at line 28 of file esx_Zveg_ml.f90.

4.13.3.7 real,save,private esx_Zveg_ml::default

Definition at line 22 of file esx_Zveg_ml.f90.

4.13.3.8 real,dimension(:),allocatable,public esx_Zveg_ml::dLAI

Definition at line 28 of file esx_Zveg_ml.f90.

4.13.3.9 real,dimension(:),allocatable,public esx_Zveg_ml::gns

Definition at line 28 of file esx_Zveg_ml.f90.

4.13.3.10 real,dimension(:),allocatable,public esx_Zveg_ml::gsto

Definition at line 28 of file esx_Zveg_ml.f90.

4.13.3.11 integer,save,public esx_Zveg_ml::layers

Definition at line 26 of file esx_Zveg_ml.f90.

4.13.3.12 integer,save,public esx_Zveg_ml::nhVeg

Definition at line 26 of file esx_Zveg_ml.f90.

4.13.3.13 integer,save,public esx_Zveg_ml::no

Definition at line 26 of file esx_Zveg_ml.f90.

4.13.3.14 real,dimension(:),allocatable,public esx_Zveg_ml::non

Definition at line 28 of file esx_Zveg_ml.f90.

4.13.3.15 integer,save,public esx_Zveg_ml::of

Definition at line 26 of file esx_Zveg_ml.f90.

4.13.3.16 real,save,private esx_Zveg_ml::parameters

Definition at line 22 of file esx_Zveg_ml.f90.

4.13.3.17 real,dimension(:),allocatable,public esx_Zveg_ml::PARz

Definition at line 28 of file esx_Zveg_ml.f90.

4.13.3.18 real,dimension(:),allocatable,public esx_Zveg_ml::stomatal

Definition at line 28 of file esx_Zveg_ml.f90.

4.14 Io_ml Module Reference

Variables

- integer, parameter, public IO_LOG = 16
- integer, parameter, public IO_RES = 18

4.14.1 Variable Documentation

4.14.1.1 integer,parameter,public Io_ml::IO_LOG = 16

Definition at line 6 of file Io_ml.f90.

4.14.1.2 integer,parameter,public Io_ml::IO_RES = 18

Definition at line 7 of file Io_ml.f90.

4.15 Kz_ml Module Reference

Provides Kz from various methods.

Functions/Subroutines

- subroutine, public def_kz (z, KzMethod)
- real, dimension(size(z)), public def_kz_nsl (z, nsl, ustar)
- real, public def_kz_pow (z, za, Ka, n)
- subroutine, public print_Kz (io, z, Kz, txt)

Variables

- real, dimension(:), allocatable, save, public Kz

4.15.1 Detailed Description

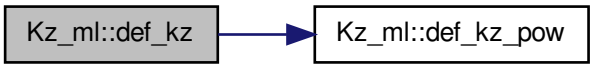
Provides Kz from various methods.

4.15.2 Function/Subroutine Documentation

4.15.2.1 subroutine,public Kz_ml::def_kz (real,dimension(:),intent(in) *z*, character(len=*) *KzMethod*)

Definition at line 18 of file Kz_ml.f90.

Here is the call graph for this function:



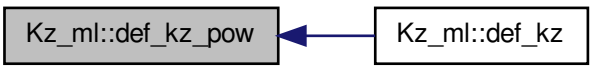
4.15.2.2 real,dimension(size(z)),public Kz_ml::def_kz_nsl (real,dimension(:),intent(in) *z,* integer,intent(in) *nsl,* real,intent(in) *ustar*)

Definition at line 34 of file Kz_ml.f90.

4.15.2.3 real,public Kz_ml::def_kz_pow (real,intent(in) *z,* real,intent(in) *za,* real,intent(in) *Ka,* real,intent(in) *n*)

Definition at line 48 of file Kz_ml.f90.

Here is the caller graph for this function:



4.15.2.4 subroutine,public Kz_ml::print_Kz (integer *io,* real,dimension(:),intent(in) *z,* real,dimension(:),intent(in) *Kz,* character(len=∗) *txt*)

Definition at line 57 of file Kz_ml.f90.

4.15.3 Variable Documentation

4.15.3.1 real,dimension(:),allocatable,save,public Kz_ml::Kz

Definition at line 14 of file Kz_ml.f90.

4.16 ModelConstants_ml Module Reference

Variables

- integer, parameter, public CHEMTMIN = 148
- integer, parameter, public CHEMTMAX = 333
- integer, parameter, public KMAX_MID = 3
- integer, parameter, public KTOP = 1
- integer, parameter, public KCHEMTOP = 1
- integer, parameter, public KCLOUDTOP = 1
- integer, parameter, public KUPPER = 2
- real, save, public dt_advec = 1200.0
- logical, parameter, public DebugCell = .true.
- logical, parameter, public MasterProc = .true.
- logical, parameter, public DEBUG_KDIFF = .true.
- logical, parameter, public DEBUG_DRYRUN = .false.
- logical, parameter, public DEBUG_SOLVER = .true.
- logical, parameter, public DEBUG_RUNCHEM = .true.

4.16.1 Variable Documentation

4.16.1.1 integer,parameter,public ModelConstants_ml::CHEMTMAX = 333

Definition at line 9 of file ModelConstants_ml.f90.

4.16.1.2 integer,parameter,public ModelConstants_ml::CHEMTMIN = 148

Definition at line 9 of file ModelConstants_ml.f90.

4.16.1.3 logical,parameter,public ModelConstants_ml::DEBUG_DRYRUN = .false.

Definition at line 25 of file ModelConstants_ml.f90.

4.16.1.4 logical,parameter,public ModelConstants_ml::DEBUG_KDIFF = .true.

Definition at line 24 of file ModelConstants_ml.f90.

4.16.1.5 logical,parameter,public ModelConstants_ml::DEBUG_RUNCHEM = .true.

Definition at line 25 of file ModelConstants_ml.f90.

4.16.1.6 logical,parameter,public ModelConstants_ml::DEBUG_SOLVER = .true.

Definition at line 25 of file ModelConstants_ml.f90.

4.16.1.7 logical,parameter,public ModelConstants_ml::DebugCell = .true.

Definition at line 22 of file ModelConstants_ml.f90.

4.16.1.8 real,save,public ModelConstants_ml::dt_advec = 1200.0

Definition at line 19 of file ModelConstants_ml.f90.

4.16.1.9 integer,parameter,public ModelConstants_ml::KCHEMTOP = 1

Definition at line 12 of file ModelConstants_ml.f90.

4.16.1.10 integer,parameter,public ModelConstants_ml::KCLOUDTOP = 1

Definition at line 12 of file ModelConstants_ml.f90.

4.16.1.11 integer,parameter,public ModelConstants_ml::KMAX_MID = 3

Definition at line 12 of file ModelConstants_ml.f90.

4.16.1.12 integer,parameter,public ModelConstants_ml::KTOP = 1

Definition at line 12 of file ModelConstants_ml.f90.

4.16.1.13 integer,parameter,public ModelConstants_ml::KUPPER = 2

Definition at line 12 of file ModelConstants_ml.f90.

4.16.1.14 logical,parameter,public ModelConstants_ml::MasterProc = .true.

Definition at line 23 of file ModelConstants_ml.f90.

4.17 PhysicalConstants_ml Module Reference

Variables

- real, parameter, public AVOG = 6.023e23
- real, parameter, public ATWAIR = 28.964
- real, parameter, public RGAS_ATML = 0.08205
- real, parameter, public RGAS_KG = 287.0
- real, parameter, public RGAS_J = 8.3144
- real, parameter, public GRAV = 9.807

- real, parameter, public CP = 1004.0
- real, parameter, public KAPPA = RGAS_KG/CP
- real, parameter, public KARMAN = 0.41
- real, parameter, public PI = 3.14159265358979323846264338327 9
- real, parameter, public DEG2RAD = PI/180.0
- real, parameter, public RAD2DEG = 180.0/PI
- real, parameter, public ROWATER = 1000.0
- real, parameter, public BOLTZMANN = 1.380e-23
- real, parameter, public FREEPATH = 6.5e-8
- real, parameter, public VISCO = 1.46e-5
- real, parameter, public DAY_ZEN = 89.9999999942704
- real, parameter, public DAY_COSZEN = 1.0e-10
- real, parameter, public PRANDTL = 0.71
- real, parameter, public Sc_H20 = 0.6
- real, parameter, public CHARNOCK = 0.0144
- real, parameter, public T0 = 273.15

4.17.1 Variable Documentation

4.17.1.1 real,parameter,public PhysicalConstants_ml::ATWAIR = 28.964

Definition at line 39 of file PhysicalConstants_ml.f90.

4.17.1.2 real,parameter,public PhysicalConstants_ml::AVOG = 6.023e23

Definition at line 39 of file PhysicalConstants_ml.f90.

4.17.1.3 real,parameter,public PhysicalConstants_ml::BOLTZMANN = 1.380e-23

Definition at line 49 of file PhysicalConstants_ml.f90.

4.17.1.4 real,parameter,public PhysicalConstants_ml::CHARNOCK = 0.0144

Definition at line 74 of file PhysicalConstants_ml.f90.

4.17.1.5 real,parameter,public PhysicalConstants_ml::CP = 1004.0

Definition at line 49 of file PhysicalConstants_ml.f90.

4.17.1.6 real,parameter,public PhysicalConstants_ml::DAY_COSZEN = 1.0e-10

Definition at line 65 of file PhysicalConstants_ml.f90.

4.17.1.7 real,parameter,public PhysicalConstants_ml::DAY_ZEN = 89.9999999942704

Definition at line 65 of file PhysicalConstants_ml.f90.

4.17.1.8 real,parameter,public PhysicalConstants_ml::DEG2RAD = PI/180.0

Definition at line 49 of file PhysicalConstants_ml.f90.

4.17.1.9 real,parameter,public PhysicalConstants_ml::FREEPATH = 6.5e-8

Definition at line 49 of file PhysicalConstants_ml.f90.

4.17.1.10 real,parameter,public PhysicalConstants_ml::GRAV = 9.807

Definition at line 49 of file PhysicalConstants_ml.f90.

4.17.1.11 real,parameter,public PhysicalConstants_ml::KAPPA = RGAS_KG/CP

Definition at line 49 of file PhysicalConstants_ml.f90.

4.17.1.12 real,parameter,public PhysicalConstants_ml::KARMAN = 0.41

Definition at line 49 of file PhysicalConstants_ml.f90.

4.17.1.13 real,parameter,public PhysicalConstants_ml::PI = 3.14159265358979323846264338327 9

Definition at line 49 of file PhysicalConstants_ml.f90.

4.17.1.14 real,parameter,public PhysicalConstants_ml::PRANDTL = 0.71

Definition at line 74 of file PhysicalConstants_ml.f90.

4.17.1.15 real,parameter,public PhysicalConstants_ml::RAD2DEG = 180.0/PI

Definition at line 49 of file PhysicalConstants_ml.f90.

4.17.1.16 real,parameter,public PhysicalConstants_ml::RGAS_ATML = 0.08205

Definition at line 39 of file PhysicalConstants_ml.f90.

4.17.1.17 real,parameter,public PhysicalConstants_ml::RGAS_J = 8.3144

Definition at line 39 of file PhysicalConstants_ml.f90.

4.17.1.18 real,parameter,public PhysicalConstants_ml::RGAS_KG = 287.0

Definition at line 39 of file PhysicalConstants_ml.f90.

4.17.1.19 real,parameter,public PhysicalConstants_ml::ROWATER = 1000.0

Definition at line 49 of file PhysicalConstants_ml.f90.

4.17.1.20 real,parameter,public PhysicalConstants_ml::Sc_H20 = 0.6

Definition at line 74 of file PhysicalConstants_ml.f90.

4.17.1.21 real,parameter,public PhysicalConstants_ml::T0 = 273.15

Definition at line 87 of file PhysicalConstants_ml.f90.

4.17.1.22 real,parameter,public PhysicalConstants_ml::VISCO = 1.46e-5

Definition at line 49 of file PhysicalConstants_ml.f90.

4.18 Testing_ml Module Reference

Functions/Subroutines

- real, public an_sol_m1 (t, K, Vd)
- real, public an_sol_c1 (t, z, K, Vd)
- elemental real, public an_sol_c2 (t, z, Ka, za, n)
- subroutine, public writedata (io, label, headers, coord, data)
- subroutine writetdata (io, label, times, coord, data)
- subroutine, public writeZarray (io, label, coord, tcoord, data)
- real, dimension(n), public def_prof (n, i1, i2, val)

4.18.1 Function/Subroutine Documentation

4.18.1.1 real,public Testing_ml::an_sol_c1 (real,intent(in) *t,* real,intent(in) *z,* real,intent(in) *K,* real,intent(in) *Vd*)

Definition at line 41 of file Testing_ml.f90.

4.18.1.2 elemental real,public Testing_ml::an_sol_c2 (real,intent(in) *t,* real,intent(in) *z,* real,intent(in) *Ka,* real,intent(in) *za,* real,intent(in) *n*)

Definition at line 56 of file Testing_ml.f90.

4.18.1.3 real,public Testing_ml::an_sol_m1 (real,intent(in) *t,* real,intent(in) *K,* real,intent(in) *Vd*)

Definition at line 25 of file Testing_ml.f90.

4.18.1.4 real,dimension(n),public Testing_ml::def_prof (integer,intent(in) *n,* integer,intent(in) *i1,* integer,intent(in) *i2,* real,intent(in) *val*)

Definition at line 173 of file Testing_ml.f90.

4.18.1.5 subroutine,public Testing_ml::writedata (integer,intent(in) *io,* character(len=∗) *label,* character(len=∗),dimension(:) *headers,* real,dimension(:) *coord,* real,dimension(:,:) *data*)

Definition at line 74 of file Testing_ml.f90.

4.18.1.6 subroutine Testing_ml::writetdata (integer,intent(in) *io,* character(len=∗) *label,* real,dimension(:),intent(in) *times,* real,dimension(:),intent(in) *coord,* real,dimension(:,:),intent(in) *data*)

Definition at line 102 of file Testing_ml.f90.

Here is the caller graph for this function:

4.18.1.7 subroutine,public Testing_ml::writeZarray (integer,intent(in) *io,* character(len=∗) *label,* real,dimension(:) *coord,* real,dimension(:) *tcoord,* real,dimension(:,:) *data*)

Definition at line 142 of file Testing_ml.f90.

Chapter 5

Data Type Documentation

5.1 ChemSpecs_ml::Chemical Type Reference

Public Attributes

- character(len=20) name
- real molwt
- integer nmhc
- integer carbons
- real nitrogens
- integer sulphurs
- real ExtC
- real CiStar
- real DeltaH

5.1.1 Detailed Description

Definition at line 87 of file CM_ChemSpecs_ml.f90.

5.1.2 Member Data Documentation

5.1.2.1 integer ChemSpecs_ml::Chemical::carbons

Definition at line 91 of file CM_ChemSpecs_ml.f90.

5.1.2.2 real ChemSpecs_ml::Chemical::CiStar

Definition at line 95 of file CM_ChemSpecs_ml.f90.

5.1.2.3 real ChemSpecs_ml::Chemical::DeltaH

Definition at line 96 of file CM_ChemSpecs_ml.f90.

5.1.2.4 real ChemSpecs_ml::Chemical::ExtC

Definition at line 94 of file CM_ChemSpecs_ml.f90.

5.1.2.5 real ChemSpecs_ml::Chemical::molwt

Definition at line 89 of file CM_ChemSpecs_ml.f90.

5.1.2.6 character(len=20) ChemSpecs_ml::Chemical::name

Definition at line 88 of file CM_ChemSpecs_ml.f90.

5.1.2.7 real ChemSpecs_ml::Chemical::nitrogens

Definition at line 92 of file CM_ChemSpecs_ml.f90.

5.1.2.8 integer ChemSpecs_ml::Chemical::nmhc

Definition at line 90 of file CM_ChemSpecs_ml.f90.

5.1.2.9 integer ChemSpecs_ml::Chemical::sulphurs

Definition at line 93 of file CM_ChemSpecs_ml.f90.

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

- CM_ChemSpecs_ml.f90

5.2 DefPhotolysis_ml::mcmdj Type Reference

Private Attributes

- integer ind
- real L
- real M
- real N
- real exj

5.2.1 Detailed Description

Definition at line 39 of file DefPhotolysis_ml.f90.

5.2.2 Member Data Documentation

5.2.2.1 real DefPhotolysis_ml::mcmdj::exj [private]

Definition at line 44 of file DefPhotolysis_ml.f90.

5.2.2.2 integer DefPhotolysis_ml::mcmdj::ind [private]

Definition at line 40 of file DefPhotolysis_ml.f90.

5.2.2.3 real DefPhotolysis_ml::mcmdj::L [private]

Definition at line 41 of file DefPhotolysis_ml.f90.

5.2.2.4 real DefPhotolysis_ml::mcmdj::M [private]

Definition at line 42 of file DefPhotolysis_ml.f90.

5.2.2.5 real DefPhotolysis_ml::mcmdj::N [private]

Definition at line 43 of file DefPhotolysis_ml.f90.

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

- DefPhotolysis_ml.f90

Chapter 6

File Documentation

6.1 CheckStop_ml.f90 File Reference

Modules

- module Checkstop_ml

Functions/Subroutines

- subroutine, public Checkstop_ml::CheckStop (logic, txt)

6.2 ChemFunctions_ml.f90 File Reference

Modules

- module ChemFunctions_ml

Functions/Subroutines

- real, public ChemFunctions_ml::kmt3 (tinv, airM, a1, c1, a3, c3, a4, c4, M)
- real ChemFunctions_ml::troe (k0, kinf, Fc, M)
- real ChemFunctions_ml::troeInLog (k0, kinf, LogFc, M)
- real ChemFunctions_ml::IUPAC_troe (k0, kinf, Fc, M, N)
- real, public ChemFunctions_ml::kaero (rh)

6.3 ChemSolver_ml.f90 File Reference

Modules

- module ChemSolver_ml

Functions/Subroutines

- subroutine, public ChemSolver_ml::chemsolve (xn, Dchem, debug_flag, itern)
- subroutine ChemSolver_ml::makedt (dti, nchem, coeff1, coeff2, cc)

  >>

Variables

- integer, parameter ChemSolver_ml::nchemMAX = 1200
- integer, parameter ChemSolver_ml::NUM_INITCHEM = 5
- real, save ChemSolver_ml::DT_INITCHEM = 1.0
- integer, parameter ChemSolver_ml::EXTRA_ITER = 1

6.4 CM_ChemDims_ml.f90 File Reference

Modules

- module ChemDims_ml

Variables

- integer, parameter, public ChemDims_ml::NRCT = 9
- integer, parameter, public ChemDims_ml::NSPEC_TOT = 14
- integer, parameter, public ChemDims_ml::NSPEC_ADV = 9
- integer, parameter, public ChemDims_ml::NSPEC_SHL = 5

6.5 CM_ChemRates_ml.f90 File Reference

Modules

- module ChemRates_ml

  MODULE Tabulates Rate-coefficients - temperature dependants into rct array.

Functions/Subroutines

- subroutine, public ChemRates_ml::setchemrates ()

6.6 CM_ChemSpecs_ml.f90 File Reference

Data Types

- type ChemSpecs_ml::Chemical

Modules

- module ChemSpecs_ml

  _____<

Functions/Subroutines

- subroutine, public ChemSpecs_ml::define_chemicals ()

Variables

- integer, parameter, public ChemSpecs_ml::NAEROSOL = 0
- integer, parameter, public ChemSpecs_ml::FIRST_SEMIVOL = -999
- integer, parameter, public ChemSpecs_ml::LAST_SEMIVOL = -999
- integer, parameter, public ChemSpecs_ml::OD = 1
- integer, parameter, public ChemSpecs_ml::OP = 2
- integer, parameter, public ChemSpecs_ml::OH = 3
- integer, parameter, public ChemSpecs_ml::HO2 = 4
- integer, parameter, public ChemSpecs_ml::RO2 = 5
- integer, parameter, public ChemSpecs_ml::O3 = 6
- integer, parameter, public ChemSpecs_ml::NO = 7
- integer, parameter, public ChemSpecs_ml::NO2 = 8
- integer, parameter, public ChemSpecs_ml::HNO3 = 9
- integer, parameter, public ChemSpecs_ml::VOC = 10
- integer, parameter, public ChemSpecs_ml::CH3CHO = 11
- integer, parameter, public ChemSpecs_ml::PAN = 12
- integer, parameter, public ChemSpecs_ml::CH3COO2 = 13
- integer, parameter, public ChemSpecs_ml::CO = 14
- integer, parameter, public ChemSpecs_ml::IXADV_O3 = 1
- integer, parameter, public ChemSpecs_ml::IXADV_NO = 2
- integer, parameter, public ChemSpecs_ml::IXADV_NO2 = 3
- integer, parameter, public ChemSpecs_ml::IXADV_HNO3 = 4
- integer, parameter, public ChemSpecs_ml::IXADV_VOC = 5
- integer, parameter, public ChemSpecs_ml::IXADV_CH3CHO = 6
- integer, parameter, public ChemSpecs_ml::IXADV_PAN = 7
- integer, parameter, public ChemSpecs_ml::IXADV_CH3COO2 = 8
- integer, parameter, public ChemSpecs_ml::IXADV_CO = 9
- integer, parameter, public ChemSpecs_ml::IXSHL_OD = 1
- integer, parameter, public ChemSpecs_ml::IXSHL_OP = 2

- integer, parameter, public ChemSpecs_ml::IXSHL_OH = 3
- integer, parameter, public ChemSpecs_ml::IXSHL_HO2 = 4
- integer, parameter, public ChemSpecs_ml::IXSHL_RO2 = 5
- type(Chemical), dimension(nspec_tot), target, public ChemSpecs_ml::species
- type(Chemical), dimension(:), pointer, public ChemSpecs_ml::species_shl = >null()
- type(Chemical), dimension(:), pointer, public ChemSpecs_ml::species_adv = >null()

6.7 CM_Reactions1.inc File Reference

6.8 CM_Reactions2.inc File Reference

6.9 DefPhotolysis_ml.f90 File Reference

Data Types

- type DefPhotolysis_ml::mcmdj

Modules

- module DefPhotolysis_ml

Functions/Subroutines

- subroutine, public DefPhotolysis_ml::setphotorates (time)
  >>>

Variables

- integer, parameter, public DefPhotolysis_ml::NRCPHOT = 35
- real, dimension(nrcphot), save, public DefPhotolysis_ml::rcphot = 0.0
- integer, parameter, public DefPhotolysis_ml::IDAO3 = 2
- integer, parameter, public DefPhotolysis_ml::IDBO3 = 1
- integer, parameter, public DefPhotolysis_ml::IDNO2 = 4
- integer, parameter, public DefPhotolysis_ml::IDH2O2 = 3
- integer, parameter, public DefPhotolysis_ml::IDHNO3 = 8
- integer, parameter, public DefPhotolysis_ml::IDACH2O = 11
- integer, parameter, public DefPhotolysis_ml::IDBCH2O = 12
- integer, parameter, public DefPhotolysis_ml::IDCH3CHO = 13
- integer, parameter, public DefPhotolysis_ml::IDCH3COX = 22
- integer, parameter, public DefPhotolysis_ml::IDCH3COY = -1
- integer, parameter, public DefPhotolysis_ml::IDHCOHCO = -1
- integer, parameter, public DefPhotolysis_ml::IDRCOHCO = 34

- integer, parameter, public DefPhotolysis_ml::IDANO3 = 6
- integer, parameter, public DefPhotolysis_ml::IDN2O5 = -1
- integer, parameter, public DefPhotolysis_ml::IDCH3O2H = 41
- integer, parameter, public DefPhotolysis_ml::IDHO2NO2 = 16
- integer, parameter, public DefPhotolysis_ml::IDACETON = 17
- integer, parameter, public DefPhotolysis_ml::IDAGLYOX = 31
- integer, parameter, public DefPhotolysis_ml::IDBGLYOX = 32
- integer, parameter, public DefPhotolysis_ml::IDCGLYOX = 33
- integer, parameter, public DefPhotolysis_ml::IDBNO3 = 5
- integer, parameter, public DefPhotolysis_ml::IDRCOCHO = IDRCOHCO
- type(mcmdj), dimension(35) DefPhotolysis_ml::dj = (/ mcmdj(1, 6.073E-05, 1.743, 0.474, 1.295E-06) ,mcmdj(2, 4.775E-04, 0.298, 0.080, 2.482E-04) ,mcmdj(3, 1.041E-05, 0.723, 0.279, 1.581E-06) ,mcmdj(4, 1.165E-02, 0.244, 0.267, 3.364E-03) ,mcmdj(5, 2.485E-02, 0.168, 0.108, 1.378E-02) ,mcmdj(6, 1.747E-01, 0.155, 0.125, 9.280E-02) ,mcmdj(7, 2.644E-03, 0.261, 0.288, 6.944E-04) ,mcmdj(8, 9.312E-07, 1.230, 0.307, 6.785E-08) ,mcmdj(11, 4.642E-05, 0.762, 0.353, 5.178E-06) ,mcmdj(12, 6.853E-05, 0.477, 0.323, 1.214E-05) ,mcmdj(13, 7.344E-06, 1.202, 0.417, 3.769E-07) ,mcmdj(14, 2.879E-05, 1.067, 0.358, 2.152E-06) ,mcmdj(15, 2.792E-05, 0.805, 0.338, 3.110E-06) ,mcmdj(16, 1.675E-05, 0.805, 0.338, 1.866E-06) ,mcmdj(17, 7.914E-05, 0.764, 0.364, 8.472E-06) ,mcmdj(18, 1.140E-05, 0.396, 0.298, 2.440E-06) ,mcmdj(19, 1.140E-05, 0.396, 0.298, 2.440E-06) ,mcmdj(21, 7.992E-07, 1.578, 0.271, 4.270E-08) ,mcmdj(22, 5.804E-06, 1.092, 0.377, 3.934E-07) ,mcmdj(23, 1.836E-05, 0.395, 0.296, 3.963E-06) ,mcmdj(24, 1.836E-05, 0.395, 0.296, 3.963E-06) ,mcmdj(31, 6.845E-05, 0.130, 0.201, 2.874E-05) ,mcmdj(32, 1.032E-05, 0.130, 0.201, 4.333E-06) ,mcmdj(33, 3.802E-05, 0.644, 0.312, 5.678E-06) ,mcmdj(34, 1.537E-04, 0.170, 0.208, 5.989E-05) ,mcmdj(35, 3.326E-04, 0.148, 0.215, 1.300E-04) ,mcmdj(41, 7.649E-06, 0.682, 0.279, 1.223E-06) ,mcmdj(51, 1.588E-06, 1.154, 0.318, 1.225E-07) ,mcmdj(52, 1.907E-06, 1.244, 0.335, 1.238E-07) ,mcmdj(53, 2.485E-06, 1.196, 0.328, 1.756E-07) ,mcmdj(54, 4.095E-06, 1.111, 0.316, 3.357E-07) ,mcmdj(55, 1.135E-05, 0.974, 0.309, 1.132E-06) ,mcmdj(56, 7.549E-06, 1.015, 0.324, 6.787E-07) ,mcmdj(57, 3.363E-06, 1.296, 0.322, 2.140E-07) ,mcmdj(61, 7.537E-04, 0.499, 0.266, 1.586E-04) /)

6.10 esx_ChemRun_ml.f90 File Reference

Modules

- module esx_ChemRun_ml

Functions/Subroutines

- subroutine, public esx_ChemRun_ml::ChemRun ()

Variables

- real esx_ChemRun_ml::ppb = 2.5e10
- integer, dimension(6) esx_ChemRun_ml::out_specs = (/ NO, NO2, O3, OH, HO2, RO2 /)

6.11 esx_tester.f90 File Reference

Functions/Subroutines

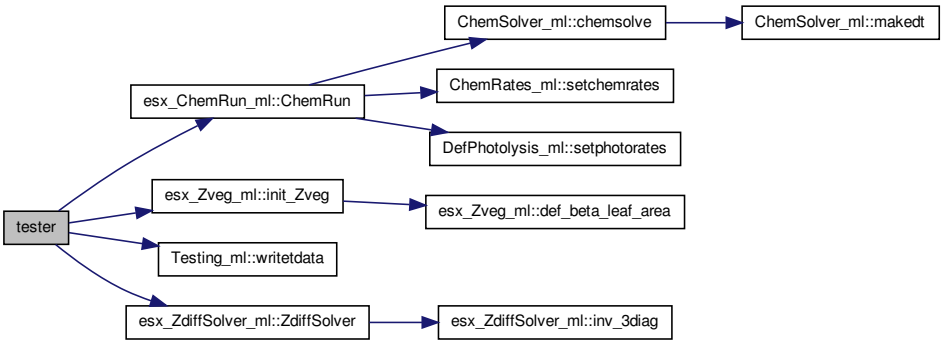
- program tester

6.11.1 Function Documentation

6.11.1.1 program tester ( )

Definition at line 1 of file esx_tester.f90.

Here is the call graph for this function:



6.12 esx_Zchem_ml.f90 File Reference

Modules

- module esx_Zchem_ml

Functions/Subroutines

- subroutine, public esx_Zchem_ml::init_zchem (errmsg)

Variables

- logical, save, public esx_Zchem_ml::first_call = .true.
- integer, save, public esx_Zchem_ml::ncalls = 0
- real, dimension(:), allocatable, save, public esx_Zchem_ml::M
- real, dimension(:), allocatable, save, public esx_Zchem_ml::n2
- real, dimension(:), allocatable, save, public esx_Zchem_ml::o2
- real, dimension(:), allocatable, save, public esx_Zchem_ml::h2o
- real, dimension(:), allocatable, save, public esx_Zchem_ml::lt300
- real, dimension(:), allocatable, save, public esx_Zchem_ml::tinv
- real, dimension(:,:), allocatable, save, public esx_Zchem_ml::rct
- real, dimension(:,:), allocatable, save, public esx_Zchem_ml::rcemis
- real, allocatable, save, public esx_Zchem_ml::xChem
- real, allocatable, save, public esx_Zchem_ml::DChem

6.13 esx_ZdiffSolver.f90 File Reference

Modules

- module esx_ZdiffSolver_ml

  MODULE Solves vertical diffusion in ESX system.

Functions/Subroutines

- subroutine, public esx_ZdiffSolver_ml::ZdiffSolver (nz, dti, Vd, Ve, D, E, Fb, Ft, concn, fixedBC, debug)
- real, dimension(size(u)), private esx_ZdiffSolver_ml::inv_3diag (U, M, L, R)

  start solution

6.14 esx_Zgrid_ml.f90 File Reference

Modules

- module esx_Zgrid_ml

  Definition of z-layer variables, e.g. dzmid,.

Functions/Subroutines

- subroutine, public esx_Zgrid_ml::init_zgrid (zin)

  layer height between grid points: dz_1½, dz_2½,..., dz_n-½
- subroutine, public esx_Zgrid_ml::test_zgrid (ionum)

  code to test zgrid routines in this module

Variables

- integer, save, public esx_Zgrid_ml::nzlev = nz for short

6.15 esx_Zmet_ml.f90 File Reference

Modules

- module esx_Zmet_ml

  module esx_Zmet_ml

Functions/Subroutines

- subroutine, public esx_Zmet_ml::init_Zmet (z)
- subroutine, public esx_Zmet_ml::test_zmet (ionum)

  Initialise for test.

Variables

- logical, save, public esx_Zmet_ml::first_call = .true.
- real, save, public esx_Zmet_ml::psurf = 1.0e5
- real, save, public esx_Zmet_ml::t2 = 285.0
- real, save, public esx_Zmet_ml::rh2 = 0.6
- real, dimension(:), allocatable, save, public esx_Zmet_ml::rhz
- real, dimension(:), allocatable, save, public esx_Zmet_ml::pz
- real, dimension(:), allocatable, save, public esx_Zmet_ml::tzK

6.16 esx_Zveg_ml.f90 File Reference

Modules

- module esx_Zveg_ml

  MODULE Definition of leaf area variables: nhVeg, dLAI(z), cumLAI(z) gsto, gns, PAR. LAI - conversion from JP matlab routines, May 2013. (minor changes)

Functions/Subroutines

- subroutine, public esx_Zveg_ml::init_Zveg (hVeg, LAI, io)

  init_Zchem allocates the LAI-associated variables based upon the values of the z array, hVeg, and LAI
- real, save, private esx_Zveg_ml::beta (x, y)

  beta function, derived using fortran gamma function. (see wikipedia)

- subroutine, public esx_Zveg_ml::def_beta_leaf_area (LAI, hVeg, a, b)
- subroutine, public esx_Zveg_ml::def_gleaf (PARz, gMax, alfa)

  def_gleaf defines stomatal and non-stomatal conductance values of the z array, hVeg, and LAI. Very simple!!! To be replaced by DO3SE options..
- real, dimension(size(cumlaiz)), public esx_Zveg_ml::def_rad_prof (I, cumLAIz, kRad, theta)

  Simple radiation profile in canopy.
- subroutine, public esx_Zveg_ml::test_Zveg (io)

  testing code. Just call to run init_Zveg with some typical values.

Variables

- real, save, private esx_Zveg_ml::beta_a = 10.0
- real, save, private esx_Zveg_ml::beta_b = 4.0
- real, save, private esx_Zveg_ml::beta
- real, save, private esx_Zveg_ml::parameters
- real, save, private esx_Zveg_ml::default
- integer, save, public esx_Zveg_ml::nhVeg
- integer, save, public esx_Zveg_ml::no
- integer, save, public esx_Zveg_ml::of
- integer, save, public esx_Zveg_ml::canopy
- integer, save, public esx_Zveg_ml::layers
- real, dimension(:), allocatable, public esx_Zveg_ml::dLAI
- real, dimension(:), allocatable, public esx_Zveg_ml::cumLAI
- real, dimension(:), allocatable, public esx_Zveg_ml::PARz
- real, dimension(:), allocatable, public esx_Zveg_ml::gsto
- real, dimension(:), allocatable, public esx_Zveg_ml::gns
- real, dimension(:), allocatable, public esx_Zveg_ml::non
- real, dimension(:), allocatable, public esx_Zveg_ml::stomatal
- real, dimension(here for now), allocatable, public esx_Zveg_ml::conductance

6.17 Io_ml.f90 File Reference

Modules

- module Io_ml

Variables

- integer, parameter, public Io_ml::IO_LOG = 16
- integer, parameter, public Io_ml::IO_RES = 18

6.18 Kz_ml.f90 File Reference

Modules

- module Kz_ml

  Provides Kz from various methods.

Functions/Subroutines

- subroutine, public Kz_ml::def_kz (z, KzMethod)
- real, dimension(size(z)), public Kz_ml::def_kz_nsl (z, nsl, ustar)
- real, public Kz_ml::def_kz_pow (z, za, Ka, n)
- subroutine, public Kz_ml::print_Kz (io, z, Kz, txt)

Variables

- real, dimension(:), allocatable, save, public Kz_ml::Kz

6.19 ModelConstants_ml.f90 File Reference

Modules

- module ModelConstants_ml

Variables

- integer, parameter, public ModelConstants_ml::CHEMTMIN = 148
- integer, parameter, public ModelConstants_ml::CHEMTMAX = 333
- integer, parameter, public ModelConstants_ml::KMAX_MID = 3
- integer, parameter, public ModelConstants_ml::KTOP = 1
- integer, parameter, public ModelConstants_ml::KCHEMTOP = 1
- integer, parameter, public ModelConstants_ml::KCLOUDTOP = 1
- integer, parameter, public ModelConstants_ml::KUPPER = 2
- real, save, public ModelConstants_ml::dt_advec = 1200.0
- logical, parameter, public ModelConstants_ml::DebugCell = .true.
- logical, parameter, public ModelConstants_ml::MasterProc = .true.
- logical, parameter, public ModelConstants_ml::DEBUG_KDIFF = .true.
- logical, parameter, public ModelConstants_ml::DEBUG_DRYRUN = .false.
- logical, parameter, public ModelConstants_ml::DEBUG_SOLVER = .true.
- logical, parameter, public ModelConstants_ml::DEBUG_RUNCHEM = .true.

6.20 PhysicalConstants_ml.f90 File Reference

Modules

- module PhysicalConstants_ml

Variables

- real, parameter, public PhysicalConstants_ml::AVOG = 6.023e23
- real, parameter, public PhysicalConstants_ml::ATWAIR = 28.964
- real, parameter, public PhysicalConstants_ml::RGAS_ATML = 0.08205
- real, parameter, public PhysicalConstants_ml::RGAS_KG = 287.0
- real, parameter, public PhysicalConstants_ml::RGAS_J = 8.3144
- real, parameter, public PhysicalConstants_ml::GRAV = 9.807
- real, parameter, public PhysicalConstants_ml::CP = 1004.0
- real, parameter, public PhysicalConstants_ml::KAPPA = RGAS_KG/CP
- real, parameter, public PhysicalConstants_ml::KARMAN = 0.41
- real, parameter, public PhysicalConstants_ml::PI = 3.14159265358979323846264338327 9
- real, parameter, public PhysicalConstants_ml::DEG2RAD = PI/180.0
- real, parameter, public PhysicalConstants_ml::RAD2DEG = 180.0/PI
- real, parameter, public PhysicalConstants_ml::ROWATER = 1000.0
- real, parameter, public PhysicalConstants_ml::BOLTZMANN = 1.380e-23
- real, parameter, public PhysicalConstants_ml::FREEPATH = 6.5e-8
- real, parameter, public PhysicalConstants_ml::VISCO = 1.46e-5
- real, parameter, public PhysicalConstants_ml::DAY_ZEN = 89.9999999942704
- real, parameter, public PhysicalConstants_ml::DAY_COSZEN = 1.0e-10
- real, parameter, public PhysicalConstants_ml::PRANDTL = 0.71
- real, parameter, public PhysicalConstants_ml::Sc_H20 = 0.6
- real, parameter, public PhysicalConstants_ml::CHARNOCK = 0.0144
- real, parameter, public PhysicalConstants_ml::T0 = 273.15

6.21 Testing_ml.f90 File Reference

Modules

- module Testing_ml

Functions/Subroutines

- real, public Testing_ml::an_sol_m1 (t, K, Vd)
- real, public Testing_ml::an_sol_c1 (t, z, K, Vd)
- elemental real, public Testing_ml::an_sol_c2 (t, z, Ka, za, n)
- subroutine, public Testing_ml::writedata (io, label, headers, coord, data)
- subroutine Testing_ml::writetdata (io, label, times, coord, data)
- subroutine, public Testing_ml::writeZarray (io, label, coord, tcoord, data)
- real, dimension(n), public Testing_ml::def_prof (n, i1, i2, val)