MOHID_LagrTracer

0.01

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Module to hold and wrap all the tracer modules.

3.1.1 Detailed Description

Module to hold and wrap all the tracer modules.

Author

Ricardo Birjukovs Canelas

3.2 tracer2d Module Reference

Module that defines a pure Lagrangian 2D tracer class and related methods, as a subset of the tracer3D module.

Functions/Subroutines

- subroutine tracer2d_init (trc, filename, time, x, is_sigma)

  Birjukovs Canelas - MARETEC Routine Author Name and Affiliation.

3.2.1 Detailed Description

Module that defines a pure Lagrangian 2D tracer class and related methods, as a subset of the tracer3D module.

Author

Ricardo Birjukovs Canelas

3.2.2 Function/Subroutine Documentation

3.2.2.1 tracer2d_init()

```
subroutine tracer2d::tracer2d_init (
            type(tracer_class), intent(out) trc,
            character(len=*), intent(in) filename,
            real(prec_time) time,
            real(prec), dimension(:), intent(in) x,
            logical, intent(in) is_sigma )
```

Birjukovs Canelas - MARETEC Routine Author Name and Affiliation.

Brief description of routine.

2D Tracer inititialization routine - Generates a tracer collection and initializes their variables

Parameters

out	*trc*	
in	*filename*	

3.3 tracer3d Module Reference

Module that defines a pure Lagrangian tracer class and related methods.

Data Types

- type tracer_class
- type tracer_dep_class
- type tracer_par_class
- type tracer_par_trans_class
- type tracer_state_class
- type tracer_stats_class

Functions/Subroutines

- subroutine, public tracer_init (trc, filename, time, x, y, is_sigma)

  Birjukovs Canelas - MARETEC Routine Author Name and Affiliation.

3.3.1 Detailed Description

Module that defines a pure Lagrangian tracer class and related methods.

Author

Ricardo Birjukovs Canelas

3.3.2 Function/Subroutine Documentation

3.3.2.1 tracer_init()

```
subroutine, public tracer3d::tracer_init (
             type(tracer_class), intent(out) trc,
             character(len=*), intent(in) filename,
             real(prec_time), intent(in) time,
             real(prec), dimension(:), intent(in) x,
             real(prec), dimension(:), intent(in) y,
             logical, intent(in) is_sigma )
```

Birjukovs Canelas - MARETEC Routine Author Name and Affiliation.

Brief description of routine.

Tracer inititialization routine - Generates a tracer collection and initializes their variables

Parameters

out	*trc*	
in	*filename*	

3.4 tracer_precision Module Reference

Module to control the precision of the Lagrangian tracer modules.

Variables

- integer, parameter **sp** = kind(1.0)
- integer, parameter **simple**
- integer, parameter **precision**
- integer, parameter **definition**
- integer, parameter **switch**
- integer, parameter **dp** = kind(1.d0)
- integer, parameter **double**
- integer, parameter **prec** = sp
- integer, parameter **prec_time** = sp
- integer, parameter **prec_wrt** = sp
- real(prec), parameter **missing_value_default** = -9999.0_dp
- real(prec), parameter **mv** = MISSING_VALUE_DEFAULT
- real(prec), parameter **mv_int** = int(MISSING_VALUE_DEFAULT)
- real(prec), parameter **err_dist** = 1E8_dp
- integer, parameter **err_ind** = -1

3.4.1 Detailed Description

Module to control the precision of the Lagrangian tracer modules.

Author

Ricardo Birjukovs Canelas

Chapter 4

Data Type Documentation

4.1 tracer3d::tracer_class Type Reference

Public Attributes

- type(tracer_par_class) par

  Type - a pure Lagrangian tracer object.
- type(tracer_state_class) **now**
- type(tracer_dep_class) **dep**
- type(tracer_stats_class) **stats**

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

- src/lib/tracer3D.f90

4.2 tracer3d::tracer_dep_class Type Reference

Public Attributes

- real(prec), dimension(:), allocatable **time**
- real(prec), dimension(:), allocatable **h**
- real(prec), dimension(:), allocatable **x**
- real(prec), dimension(:), allocatable **y**
- real(prec), dimension(:), allocatable **z**
- real(prec), dimension(:), allocatable **lon**
- real(prec), dimension(:), allocatable **lat**
- real(prec), dimension(:), allocatable **t2m_ann**
- real(prec), dimension(:), allocatable **t2m_sum**
- real(prec), dimension(:), allocatable **pr_ann**
- real(prec), dimension(:), allocatable **pr_sum**
- real(prec), dimension(:), allocatable **t2m_prann**
- real(prec), dimension(:), allocatable **d18o_ann**

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

- src/lib/tracer3D.f90

4.3 tracer3d::tracer_par_class Type Reference

Public Attributes

- integer n

  Type - parameters of a pure Lagrangian tracer object.
- integer **n_active**
- integer **n_max_dep**
- integer **id_max**
- logical **is_sigma**
- real(prec_time) **dt**
- real(prec_time) **dt_dep**
- real(prec_time) **dt_write**
- real(prec) **thk_min**
- real(prec) **h_min**
- real(prec) **depth_max**
- real(prec) **u_max**
- real(prec) **u_max_dep**
- real(prec) **h_min_dep**
- real(prec) **alpha**
- character(len=56) **weight**
- logical **noise**
- real(prec) **dens_z_lim**
- integer **dens_max**
- character(len=56) **interp_method**
- character(len=512) **par_trans_file**
- logical **use_par_trans**
- type(tracer_par_trans_class) **tpar**

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

- src/lib/tracer3D.f90

4.4 tracer3d::tracer_par_trans_class Type Reference

Public Attributes

- integer nt

  Type - transient parameters of a pure Lagrangian tracer object.
- real(prec), dimension(:), allocatable **time**
- real(prec), dimension(:), allocatable **h_min_dep**
- real(prec), dimension(:), allocatable **dt_dep**
- integer, dimension(:), allocatable **n_max_dep**
- real(prec), dimension(:), allocatable **dt_write**

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

- src/lib/tracer3D.f90

4.5 tracer3d::tracer_state_class Type Reference

Public Attributes

- real(prec_time) time

  Type - state variables of a pure Lagrangian tracer object.
- real(prec_time) **time_old**
- real(prec_time) **time_dep**
- real(prec_time) **time_write**
- real(prec_time) **dt**
- integer, dimension(:), allocatable **active**
- integer, dimension(:), allocatable **id**
- real(prec), dimension(:), allocatable **x**
- real(prec), dimension(:), allocatable **y**
- real(prec), dimension(:), allocatable **z**
- real(prec), dimension(:), allocatable **sigma**
- real(prec), dimension(:), allocatable **ux**
- real(prec), dimension(:), allocatable **uy**
- real(prec), dimension(:), allocatable **uz**
- real(prec), dimension(:), allocatable **ax**
- real(prec), dimension(:), allocatable **ay**
- real(prec), dimension(:), allocatable **az**
- real(prec), dimension(:), allocatable **dpth**
- real(prec), dimension(:), allocatable **z_srf**
- real(prec), dimension(:), allocatable **thk**
- real(prec), dimension(:), allocatable **t**
- real(prec), dimension(:), allocatable **h**

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

- src/lib/tracer3D.f90

4.6 tracer3d::tracer_stats_class Type Reference

Public Attributes

- real(prec_wrt), dimension(:), allocatable x

  Type - statistical variables of a pure Lagrangian tracer object.
- real(prec_wrt), dimension(:), allocatable **y**
- real(prec_wrt), dimension(:), allocatable **depth_norm**
- real(prec_wrt), dimension(:), allocatable **age_iso**
- real(prec_wrt), dimension(:,:,:), allocatable **depth_iso**
- real(prec_wrt), dimension(:,:,:), allocatable **depth_iso_err**
- real(prec_wrt), dimension(:,:,:), allocatable **dep_z_iso**
- integer, dimension(:,:,:), allocatable **density_iso**
- real(prec_wrt), dimension(:,:,:), allocatable **ice_age**
- real(prec_wrt), dimension(:,:,:), allocatable **ice_age_err**
- integer, dimension(:,:,:), allocatable **density**

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

- src/lib/tracer3D.f90

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