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input3d.dat

```
================================================================================
================================================================================
         MAIN INPUT DATA FILE : 2D EDDY ON A PERIODIC DOMAIN
(DIMENSIONAL RELEASE)

         INCOMPRESSIBLE FLOW
         ISOTHERM
         DIMENSIONAL FORMULATION

Initialization of the velocity field is carried out from the user's
routine Eddy_Velocity_Field in the module named
module_user_define_init_fields.f90
                                        access by the data file --->
Initial_Field_Option_For_Velocity_I

================================================================================
================================================================================
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                     GENERAL LAYOUT
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
&Version File_Version="VERSION2.0"/
================================================================================
                FLUID PROPERTIES
================================================================================

&Fluid_Properties  Reference_Density= 860.0 ,
Reference_Dynamic_Viscosity = 43.D-03 /

================================================================================
   INITIALIZATION OF THE VELOCITY COMPONENTS, THE TEMPERATURE AND
SPECIES
================================================================================
Initial_Field_Option_For_Velocity_I : Special initialisation of a 2D
eddy defined by the user's routine Eddy_Velocity_Field
                                         in the module named
module_user_define_init_fields.f90
```

```
&Velocity_Initialization I_Velocity_Reference_Value= 0.00 ,
J_Velocity_Reference_Value= 0.00, K_Velocity_Reference_Value= 0.00 ,
Initial_Field_Option_For_Velocity_I= 5 /
================================================================================
                 GRAVITY
================================================================================

No gravity

================================================================================
                    DOMAIN FEATURES
================================================================================

&Domain_Features Geometric_Layout= 0,
                 Start_Coordinate_I_Direction=-0.50 ,
End_Coordinate_I_Direction= 0.50,
                 Start_Coordinate_J_Direction=-0.50 ,
End_Coordinate_J_Direction= 0.50,
                 Start_Coordinate_K_Direction= 0.00 ,
End_Coordinate_K_Direction= 0.00,
                 Cells_Number_I_Direction= 128
,Cells_Number_J_Direction= 128 ,Cells_Number_K_Direction= 1,
                 Regular_Mesh= .true. /

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              DEFINITION OF BOUNDARY CONDITIONS
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
================================================================================
                 WALL BOUNDARY CONDITION SETUP
================================================================================
 No wall
================================================================================
               INLET AND OUTLET BOUNDARY CONDITIONS
================================================================================
No inlet, No outlet
================================================================================
               BORDER BOUNDARY CONDITIONS
================================================================================
```

```
======
Keep in mind that the domain is enclosed by default.
The walls at the ends of the domain are here replaced by periodical
conditions

&Border_Domain_Boundary_Conditions West_BC_Name= "Periodic" ,
East_BC_Name= "Periodic" , Back_BC_Name= "Periodic" , Front_BC_Name=
"Periodic" /
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
+++++++
                    NUMERICAL METHODS
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
+++++++
&Numerical_Methods  NS_NumericalMethod= "BDF2-SchemeO2"
,  !--- BDF2 + 2nd order centered scheme
                     MomentumConvection_Scheme="Centered-O2-
Conservative"   ,  !--- conservative form for solving the velocity
(momentum) equation
                     Poisson_NumericalMethod="Home-SORMultigrid-
ConstantMatrixCoef"  / !--- SOR  + multigrid method (homemade release)
for solving the Poisson's equation with constant coefficient matrix

&HomeData_PoissonSolver  SolverName="SOR"                ,         !---
Successive Over-Relaxation (SOR) method
                            Relaxation_Coefficient= 1.8  ,         !---
Relaxation coefficient of the SOR method ( 1 <= Relaxation_Coefficient
< 2)
                            Number_max_Grid= 6,                    !---
Number of grid levels
                            Number_max_Cycle= 5,                   !---
Number of multigrid cycles
                            Number_Iteration= 0,                   !---
Maximum number of SOR iterations method applied for any grid level, if
0 (or removed) the 3 next data are considered
                            Number_Iteration_FineToCoarseGrid= 15, !---
number of SOR iterations applied on any grid level during the
restriction step (before the coarsest grid computation)
                            Number_Iteration_CoarseToFineGrid= 15, !---
number of SOR iterations applied on any grid level during the
prolongation step (after the Coarsest grid computation)
                            Number_Iteration_CoarsestGrid= 15 ,    !---
number of SOR iterations applied on the coarsest grid
                            Convergence_Criterion= 1.D-10 /        !---
convergence tolerance on the residu of the Poisson's equation

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
+++++++
                    SIMULATION MANAGEMENT
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
+++++++
```

```
Time step calculated from a CFL coefficient

&Simulation_Management    Restart_Parameter= 0 ,
                          Steady_Flow_Stopping_Criterion_Enabled =
.false. , Steady_Flow_Stopping_Criterion = 1.D-22,
                          Temporal_Iterations_Number = 50000
, Final_Time = 2.0D+01  ,
                          TimeStep_Type = 1 ,
                          CFL_min= 0.25   , CFL_max= 0.25,
Iterations_For_Timestep_Linear_Progress= 1 ,
                          Timestep_Min = 1.00
, Timestep_Max = 1.00 ,
                          Simulation_Backup_Rate                =  200
, Simulation_Checking_Rate = 51  /

================================================================================
                   PROBES SETUP
================================================================================
                                                          Probes order    U
, V     , W      , T      , P      , RHO
&Probe_Quantities_Enabled  Temporal_Series_For_Quantity_Enabled(:) =
.true., .true., .false., .false., .true. , .false. /

&Probe_Location  Xi= 0.0 , Xj= 0.0 , Xk= 0.0  /
&Probe_Location  Xi= 0.1 , Xj= 0.1 , Xk= 0.0  /

&Simulation_Management  Probe_TimeIterationRecordingRate= 1   ,
                        Probe_StartTimeIterationRecording= 0  ,
                        Probe_RecordingReset=.false. /

================================================================================
              INSTANTANEOUS FIELD SETUP
================================================================================
&Field_Recording_Setup  Precision_On_Instantaneous_Fields= 2 /
&Simulation_Management
    InstantaneousFields_RecordingReset=.false.     ,
    InstantaneousFields_TimeRecordingRate= 1.0E-00 ,
    InstantaneousFields_RecordingStartTime= 0.D-00  /


&Instantaneous_Fields_Listing  Name_of_Field = "U" /   First velocity
component
&Instantaneous_Fields_Listing  Name_of_Field = "V" /   Second velocity
component
&Instantaneous_Fields_Listing  Name_of_Field = "P" /   Pressure related
```

```
to the velocity field

END OF FILE
```

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