

Namelist "Field_Recording_Setup"

This data set allows the user

- to define the precision (simple or double) on the data related to the instantaneous fields and the statistical fields.
- to reduce the dimension of the statistical fields in order to get a profile along a given direction. The reduction is made by space averaging over the other directions.

Full data set of the namelist

```
&Field_Recording_Setup Precision_On_Instantaneous_Fields=1 ,  
                      Precision_On_Statistical_Fields= 2 ,  
                      Precision_On_SpaceAveragedSlice_Fields= 1 ,  
                      Precision_On_Slice_Fields= 1 ,  
Slice_Gathering_Enabled= .false. ,  
                      Time_Statistics_Enabled= .true. ,  
                      Sample_Rate_For_Statistics= 1 ,  
                      Statistic_Space_Average_Type= "NO_SPACE_AVERAGE" /
```

Precision_On_Instantaneous_Fields

- Type : Integer Value
 - 1 : Instantaneous fields are recorded in single precision (r4).
 - 2 : Instantaneous fields are recorded in double precision (r8).

Precision_On_Slice_Fields

- Type : Integer Value
 - 1 : Instantaneous fields on slices are recorded in single precision (r4).
 - 2 : Instantaneous fields on slices are recorded in double precision (r8).

Slice_Gathering_Enabled

- Type : boolean (default value : false)
 - true : When MPI domain decomposition is used, all pieces of a slice which are split on different subdomains are gathered and recorded in a same file. This option is not available when the computation is performed in MPI graphical topology.
 - false : When MPI domain decomposition is used, each piece of a slice that belongs to a specific subdomain is recorded in a separate file.

Precision_On_SpaceAveragedSlice_Fields

- Type : Integer Value
 - 1 : Special data (space-averaged fields on slices) are recorded in single precision (r4).
 - 2 : Special data (space-averaged fields on slices) are recorded in double precision (r8).

Precision_On_Statistical_Fields

- Type : Integer Value
 - 1 : Statistical fields are recorded in single precision (r4).
 - 2 : Statistical fields are recorded in double precision (r8).

Time_Statistics_Enabled

- Type : Boolean value
 - .true. : For any quantity f , the statistical computation yields a time average field:
$$\overline{f(x,y,z)} = \frac{1}{T} \sum_{n=1}^{n=N_t} f(x_i, x_j, x_k, t_n) \Delta t$$
 - .false. : For any quantity f , the statistical computation yields a sample average field :
$$\overline{f(x,y,z)} = \frac{1}{N_t} \sum_{n=1}^{n=N_t} f(x_i, x_j, x_k, t_n)$$
 where N_t is number of instantaneous fields considered for the computation.

Statistic_Space_Averaged_Type

- Type : characters
- This data defines the direction(s) along which a spatial average is computed in addition of time or sample average:
 - NO_SPACE_AVERAGE : No space average is computed.
 - SPACE_AVERAGE_IJ : A space average is computed along the I & J-directions :
$$\overline{f(x_k)} = \frac{1}{N_i N_j T} \sum_{n=1}^{n=N_t} \sum_{i=1}^{i=N_i} \sum_{j=1}^{j=N_j} f(x_i, x_j, x_k, t_n) \Delta t$$
 or
$$\overline{f(x_k)} = \frac{1}{N_i N_j N_t} \sum_{n=1}^{n=N_t} \sum_{i=1}^{i=N_i} \sum_{j=1}^{j=N_j} f(x_i, x_j, x_k, t_n)$$
 - SPACE_AVERAGE_IK : A space average is computed along the I & K-directions
 - SPACE_AVERAGE_JK : A space average is computed along the J & K-directions
 - SPACE_AVERAGE_I : A space average is computed along the I-direction :
$$\overline{f(x_j, x_k)} = \frac{1}{N_i T} \sum_{n=1}^{n=N_t} \sum_{i=1}^{i=N_i} f(x_i, x_j, x_k, t_n) \Delta t$$
 or
$$\overline{f(x_j, x_k)} = \frac{1}{N_i N_t} \sum_{n=1}^{n=N_t} \sum_{i=1}^{i=N_i} f(x_i, x_j, x_k, t_n)$$
 - SPACE_AVERAGE_J : A space average is computed along the J-direction
 - SPACE_AVERAGE_K : A space average is computed along the K-direction

From:

<https://sunfluidh.lisn.upsaclay.fr/> - Documentation du code de simulation numérique SUNFLUIDH

Permanent link:

https://sunfluidh.lisn.upsaclay.fr/doku.php?id=sunfluidh:field_recording_setup_namelist_setup&rev=1577274296

Last update: **2019/12/25 12:44**

