

# Preparation of the files to submit : Weppe's cavity

The files to be submitted must be prepared in column files in ascii format. Quantities must be made non-dimensional as in the database, as described in the file [DatabaseWeppeCavity.xlsx](#)

Please follow the naming convention. Submit all the files in a tar or zip archive. If you submit results obtained with different models, please submit them in different archives or in different directories in the archive. Please also join by email a very short description of what is used for each series of results (typically the name of the model).

The first line of each file must indicate the variables given in each column. For instance, the head of the file `ZoneA_Velocities_z_0_100.dat` should look like:

```
# Y Z V W Vrms Wrms Rvv Rww Rvw
0.000000 0.100 0 0 0 0 0 0 0
0.000747 0.100 0.000206095050142 -0.020508943132117 0.001221698704482 0.005087800942261 1.49224921498815E-06 2.5880541284386E-05 3.11214163059359E-08
...
```

Note the character “#” at the beginning of the first line. The columns are just separated by tabulations or spaces. The number of points extracted along the profile is to your convenience.

Note that the models do not necessarily give all the quantities. For example, for eddy viscosity models, some can be reconstructed (Reynolds stresses), but others cannot (rms temperature if the temperature variance equation is not solved). If the quantity is not available, please leave a column filled with zeros, it will facilitate the automatic treatment of the results.

The domain is decomposed into 3 zones where measurements are available, as shown in Fig. 1. Here is the list of expected files for each zone :

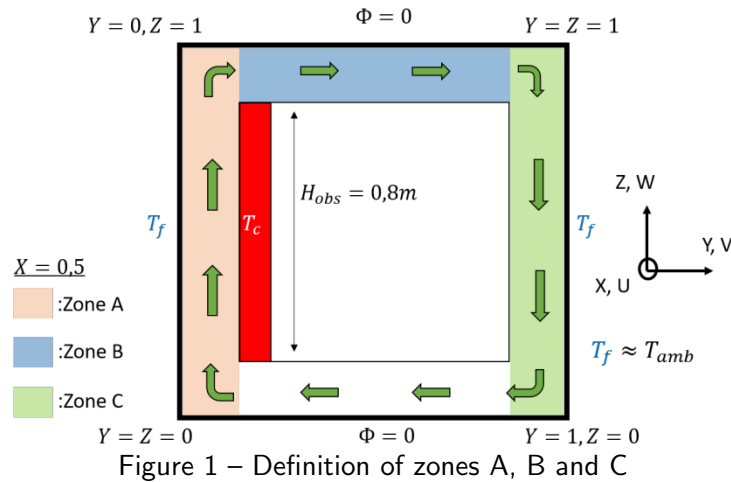
## Zone A

- **Horizontal velocity and rms velocity profiles (from  $y = 0$  to  $y = 0.1$ ) at 5 locations ( $z = 0.1; 0.3; 0.5; 0.7; 0.893$ ):**

ZoneA\_Velocities\_z\_0\_100.dat

ZoneA\_Velocities\_z\_0\_300.dat

ZoneA\_Velocities\_z\_0\_500.dat



ZoneA\_Velocities\_z\_0\_700.dat

ZoneA\_Velocities\_z\_0\_893.dat

Headers : # Y Z V W Vrms Wrms Rvv Rww Rww

- **Horizontal temperature and rms temperature profiles (from  $y = 0$  to  $y = 0.1$ ) at 5 locations ( $z = 0.1; 0.3; 0.5; 0.7; 0.893$ ):**

ZoneA\_Temperature\_z\_0\_100.dat

ZoneA\_Temperature\_z\_0\_300.dat

ZoneA\_Temperature\_z\_0\_500.dat

ZoneA\_Temperature\_z\_0\_700.dat

ZoneA\_Temperature\_z\_0\_893.dat

Headers : # Y Z T Trms

- **Temperature profile along the vertical direction (stratification) (from  $z = 0.1$  to  $z = 0.9$ ) at the location  $y = 0.05$ :**

ZoneA\_Temperature\_y\_0\_050.dat

Headers : # Y Z T

- **Nusselt number along the hot and cold walls:**

ZoneA\_Nusselt\_cold.dat

ZoneA\_Nusselt\_hot.dat

Headers : # Z Nu

- **Streamlines (restricted to the region  $0 < y < 0.1$  and  $0 < z < 1$ ) colored by the velocity magnitude (image) in the symmetry plane, for visual**

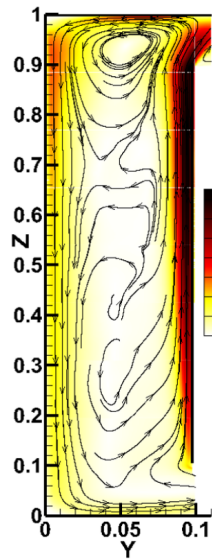


Figure 2 – Streamlines in zones A

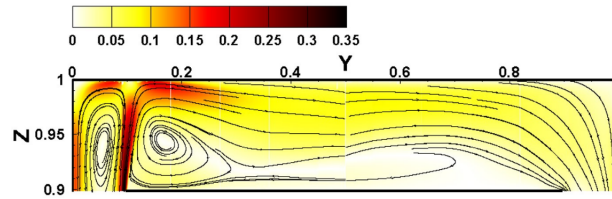


Figure 3 – Streamlines in zones B

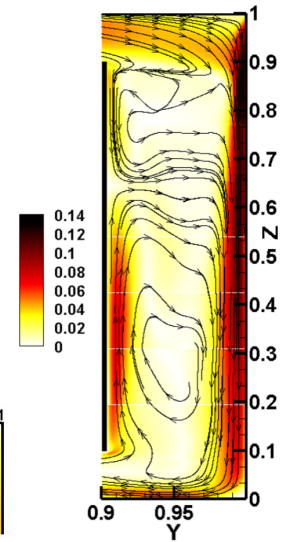


Figure 4 – Streamlines in zones C

comparison with Fig. 2. Notes that for these images, the proportions in  $y$  and  $z$  directions are not respected:

ZoneA\_Streamlines.png

## Zone B

- Vertical velocity and rms velocity profiles (from  $z = 0.9$  to  $z = 1$ ) at 5 locations ( $y = 0.15; 0.25; 0.5; 0.75; 0.85$ ):

ZoneB\_Velocities\_y\_0\_150.dat

ZoneB\_Velocities\_y\_0\_250.dat

ZoneB\_Velocities\_y\_0\_500.dat

ZoneB\_Velocities\_y\_0\_750.dat

ZoneB\_Velocities\_y\_0\_850.dat

Headers : # Y Z V W Vrms Wrms Rvv Rww Rww

- Vertical temperature and rms temperature profiles (from  $z = 0.9$  to  $z = 1$ ) at 5 locations ( $y = 0.15; 0.25; 0.5; 0.75; 0.85$ ):

ZoneB\_Temperature\_y\_0\_150.dat

ZoneB\_Temperature\_y\_0\_250.dat

ZoneB\_Temperature\_y\_0\_500.dat

ZoneB\_Temperature\_y\_0\_750.dat

ZoneB\_Temperature.y\_0\_850.dat

Headers : # Y Z T Trms

- **Streamlines (restricted to the region  $0 < y < 1$  and  $0.9 < z < 1$ ) colored by the velocity magnitude (image) in the symmetry plane, for visual comparison with Fig. 3:**

ZoneB\_Streamlines.png

## Zone C

- **Velocity and rms velocity profiles (from  $y = 0.9$  to  $y = 1$ ) at 5 locations ( $z = 0.1; 0.3; 0.5; 0.7; 0.893$ ):**

ZoneC\_Velocities.z\_0\_100.dat

ZoneC\_Velocities.z\_0\_300.dat

ZoneC\_Velocities.z\_0\_500.dat

ZoneC\_Velocities.z\_0\_700.dat

ZoneC\_Velocities.z\_0\_893.dat

Headers : # Y Z V W Vrms Wrms Rvv Rww Rvw

- **Temperature and rms temperature profiles (from  $y = 0$  to  $y = 0.1$ ) at 5 locations ( $z = 0.1; 0.3; 0.5; 0.7; 0.893$ ):**

ZoneC\_Temperature.z\_0\_100.dat

ZoneC\_Temperature.z\_0\_300.dat

ZoneC\_Temperature.z\_0\_500.dat

ZoneC\_Temperature.z\_0\_700.dat

ZoneC\_Temperature.z\_0\_893.dat

Headers : # Y Z T Trms

- **Temperature profile along the vertical direction (stratification) (from  $z = 0.1$  to  $z = 0.9$ ) at the location  $y = 0.05$ :**

ZoneC\_Temperature.y\_0\_050.dat

Headers : # Y Z T

- **Streamlines (restricted to the region  $0.9 < y < 1$  and  $0 < z < 1$ ) colored by the velocity magnitude (image) in the symmetry plane, for visual comparison with Fig. 4:**

ZoneC\_Streamlines.png