

## Challenge #3

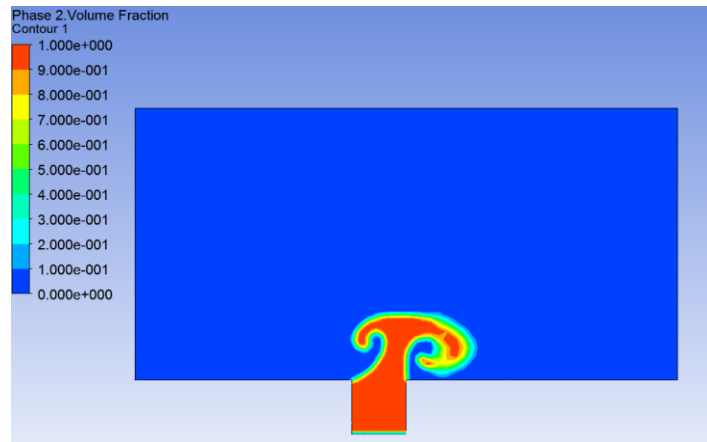
NO COLLABORATORS

UDF Code

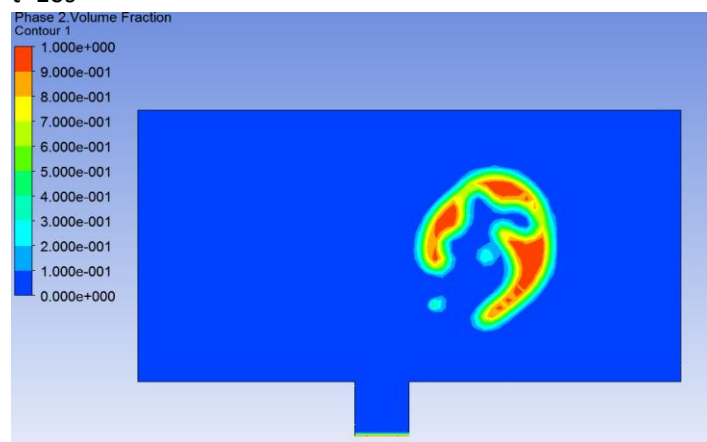
```
#include "udf.h"
DEFINE_PROFILE(VOF_magnitude, t, i)
{
  real VOF;
  real the_current_time;
  face_t f;
  the_current_time = CURRENT_TIME;
  if ((the_current_time >= 0) && (the_current_time < 5))
  {
    VOF = 1;
  }
  if ((the_current_time >= 5) && (the_current_time < 10))
  {
    VOF = 0;
  }
  if ((the_current_time >= 10) && (the_current_time < 15))
  {
    VOF = 1;
  }
  if ((the_current_time >= 15) && (the_current_time < 20))
  {
    VOF = 0;
  }
  begin_f_loop(f, t)
  {
    F_PROFILE(f, t, i) = VOF;
  }
  end_f_loop(f, t)
}
```

This was imported into ansys by selecting the user-defined tab and clicking the functions drop down menu. From that, the interpreted option was selected. The UDF source file was then added and interpret was clicked. Once the UDF was imported, it was hooked onto the phase 2 of inlet 1. The step size used was .05 and 400 steps were used. The calculation activities was changed to autosave every 100 steps. Local mesh refinement was also done from  $x_{min}=-15$ ,  $x_{max}=5$ ,  $y_{min}=-10$  and  $y_{max}=20$ .

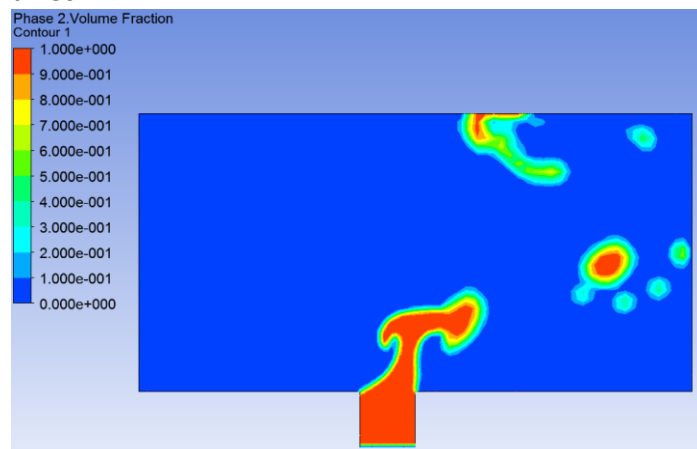
t=5s



t=10s



t=15s



t=20s

