Study of flow around a re-entry space capsule and a parachute using OpenFOAM

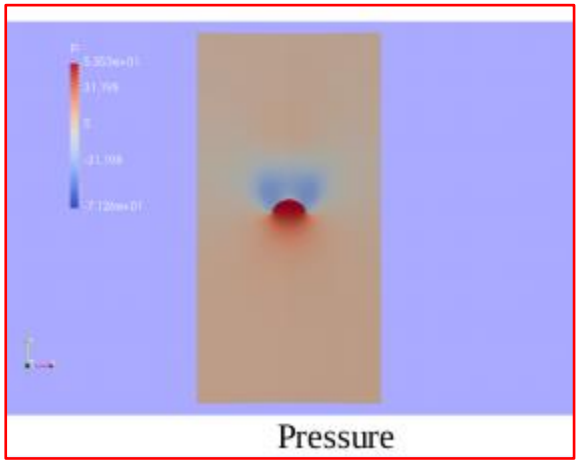
Pranay Kumar Pandey[1]

[1]Dept. of Aerospace Engineering, Amity University Mumbai, Panvel, Maharashtra 410206

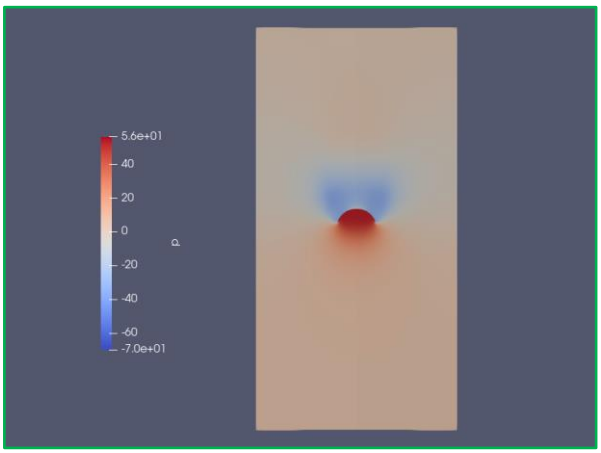
Conclusions

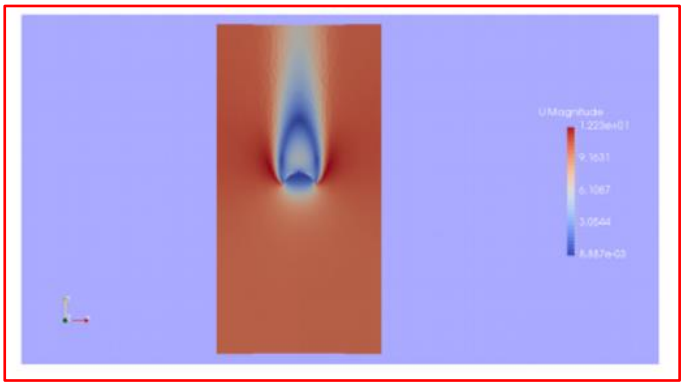
- Solver used : 1**) Capsule – sonicFoam** & **2) Parachute - simpleFoam**
- For parachute and capsules, contours are for the **last time step**.
- For comparison purposes, the plot available in the report of the case already solved previously has been bordered with Red Color of thickness 1. It also has Figure title attached to it.
- New plot / graph has border of colour black
- To account for symmetry in paraview, **reflect** tool in **filter** menu was used. Symmetry along Y Plane (for capsule) was chosen.
- To account for symmetry in paraview, **reflect** tool in **filter** menu was used. Symmetry along X Plane (for parachute) was chosen.
- The image in the left represents picture taken from Report.pdf of the case study. Towards right, results are displayed after re-runing the simulation on OF2212.
- The contours of old and new simulations match.

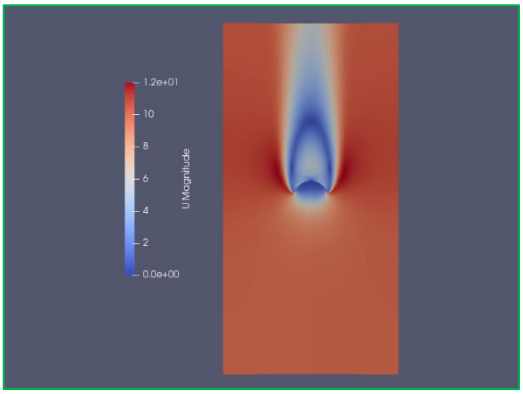
- Parachute



Pressure

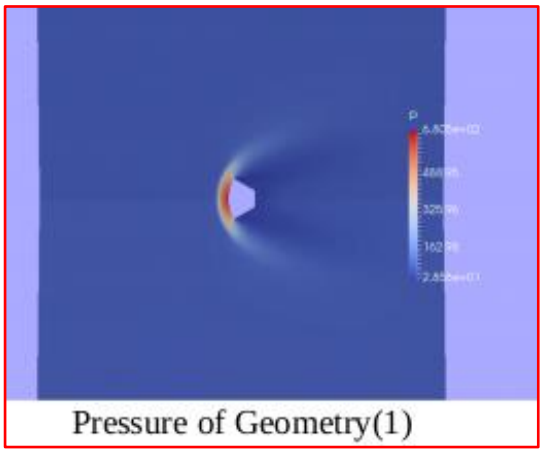




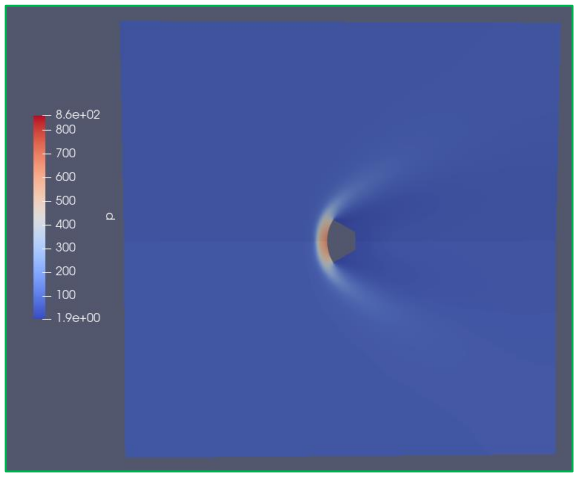


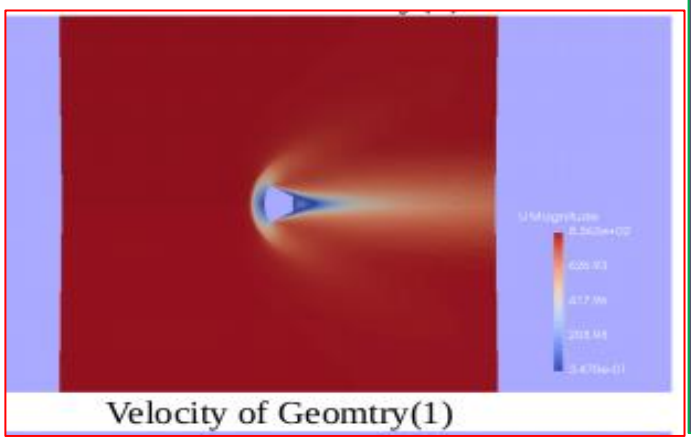
Velocity

- **Capsule (geometry – 1)**
  - There are two 2 geometries available for capsule. For our simulation, we have considered only one i.e Geometry 1.



Pressure of Geometry(1)





Velocity of Geomtry(1)