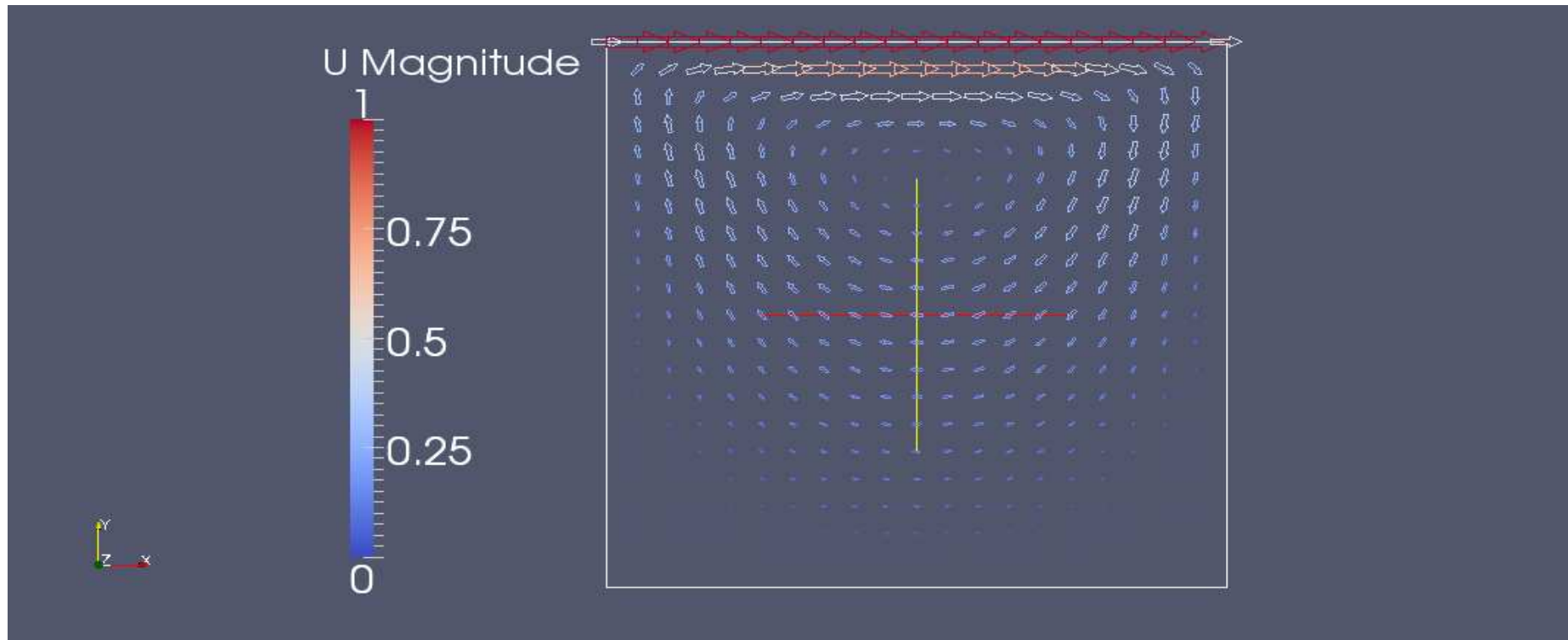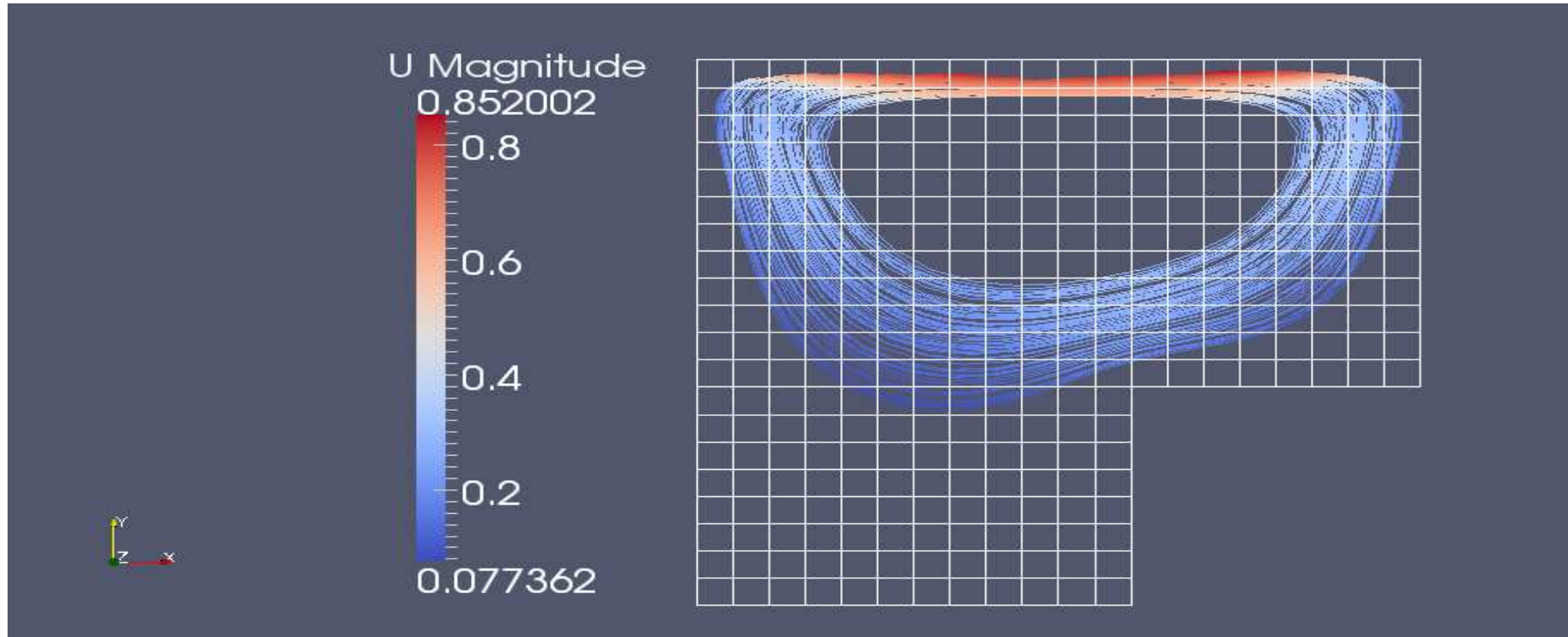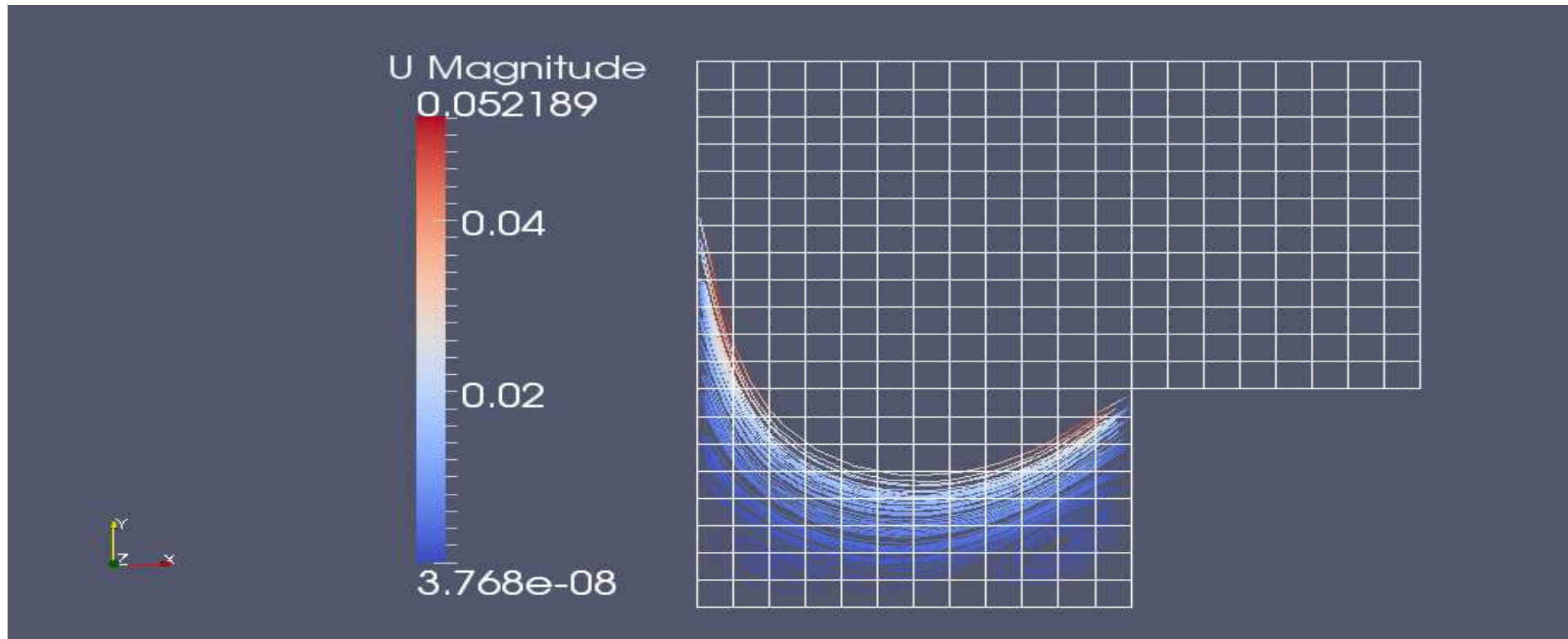# cavity

- Displaying the domain as "Outline" with parallel projection (set in "Edit View Options").

- A "Glyph filter" created on the domain representing the velocity with 2d glyphs of type "ThickArrow".
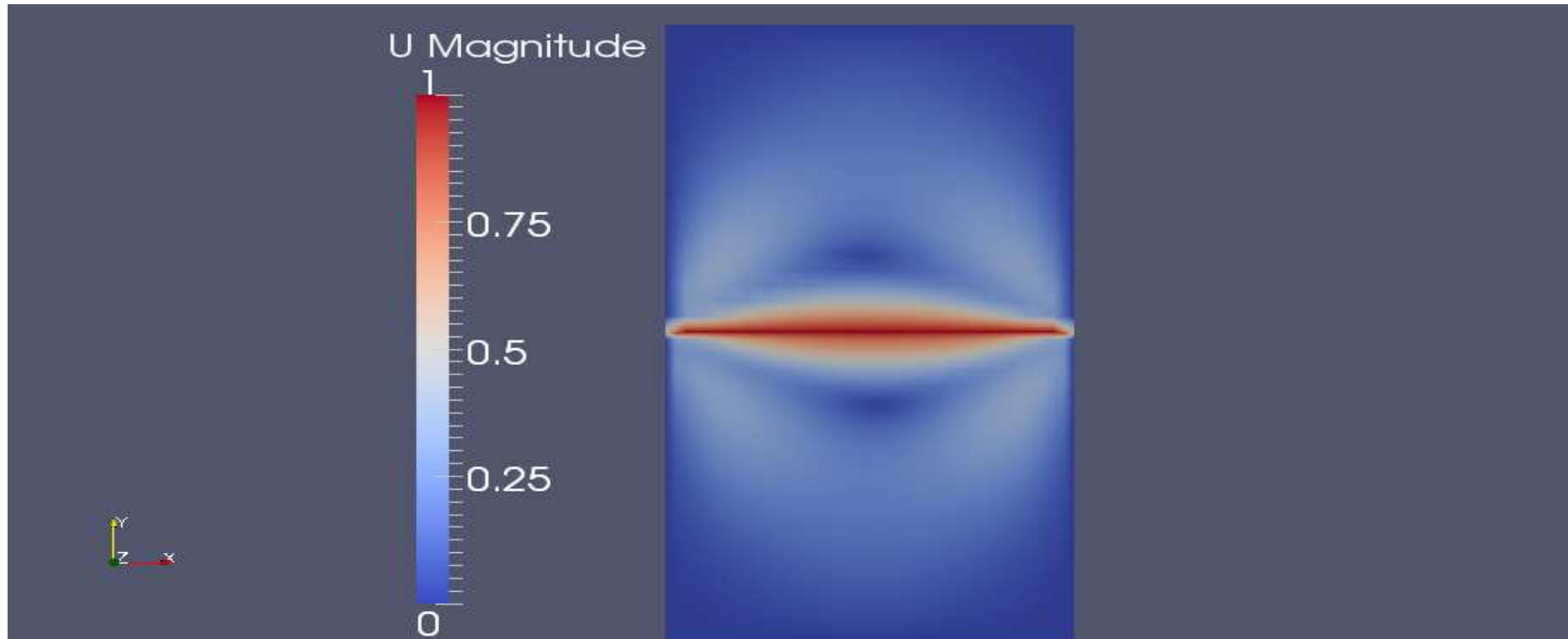
cavityClipped

- Displaying the domain as "Wireframe".

- A "StreamTracer" showing the streamlines of the velocity with default settings.

CavityClipped

- Figure showing a "StreamTracer" placed at $x = 0.03$, $y = 0.015$, $z = 0.005$.

cavityFine

- Surface representation of the velocity magnitude.

- The cavity case is included for comparison (cavity.OpenFOAM created in cavity directory by `touch cavity.OpenFOAM`). Cavity is transformed according to: **Translate**, $y = 0.1$. **Orientation**, $z = 180$. **Origin**, $x = 0.05$, $y = 0.05$.

CavityGrade
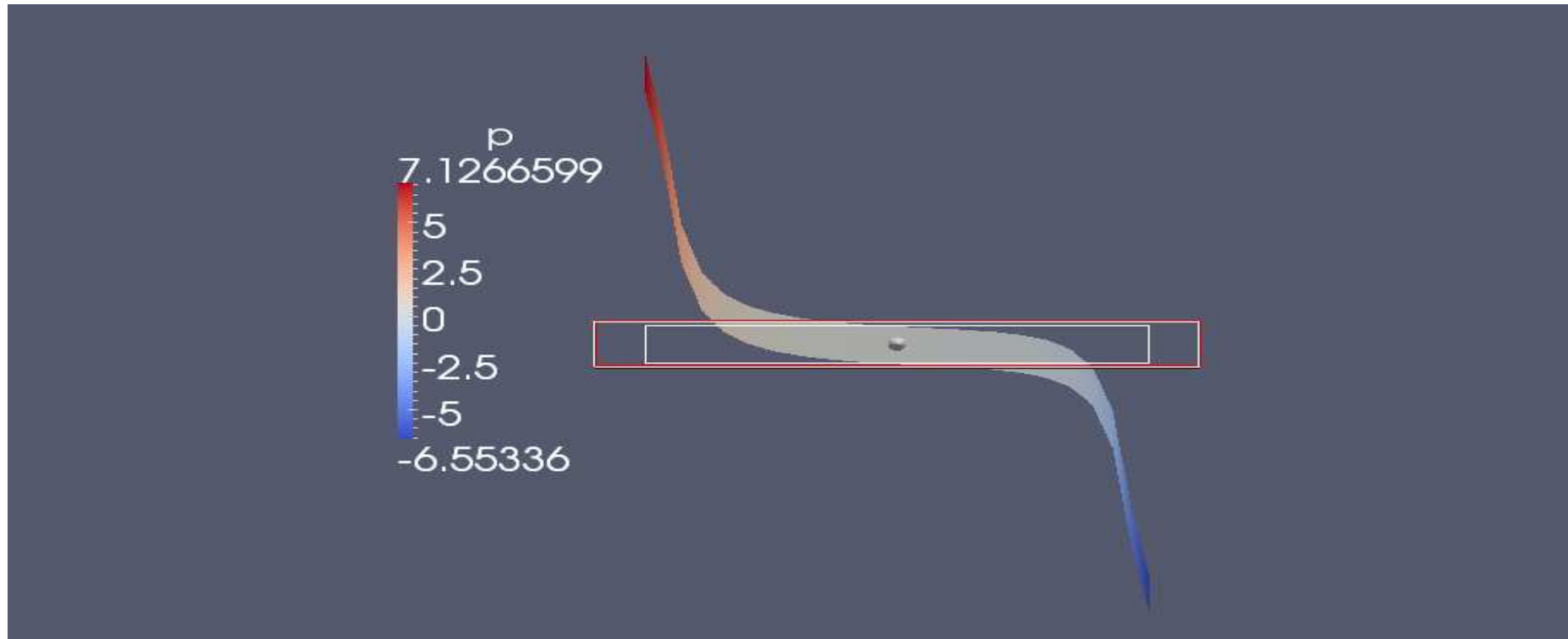

- Slice created with origin $x = 0.05$, $y = 0.1$, $z = 0.005$ and a normal in the y-direction.

- On the slice a "WarpByScalar" filter representing pressure in color and deformation is created.

cavityHighRe
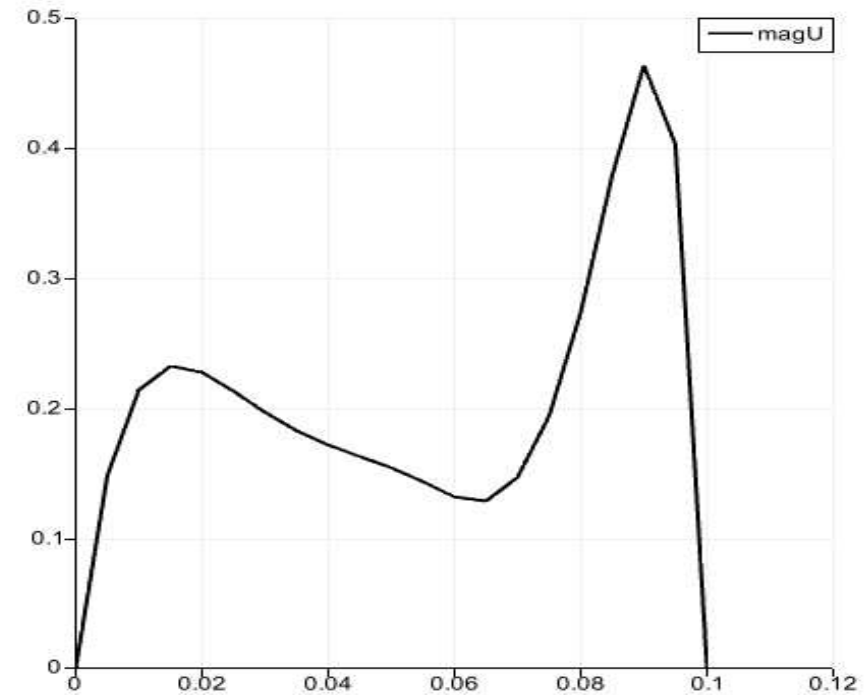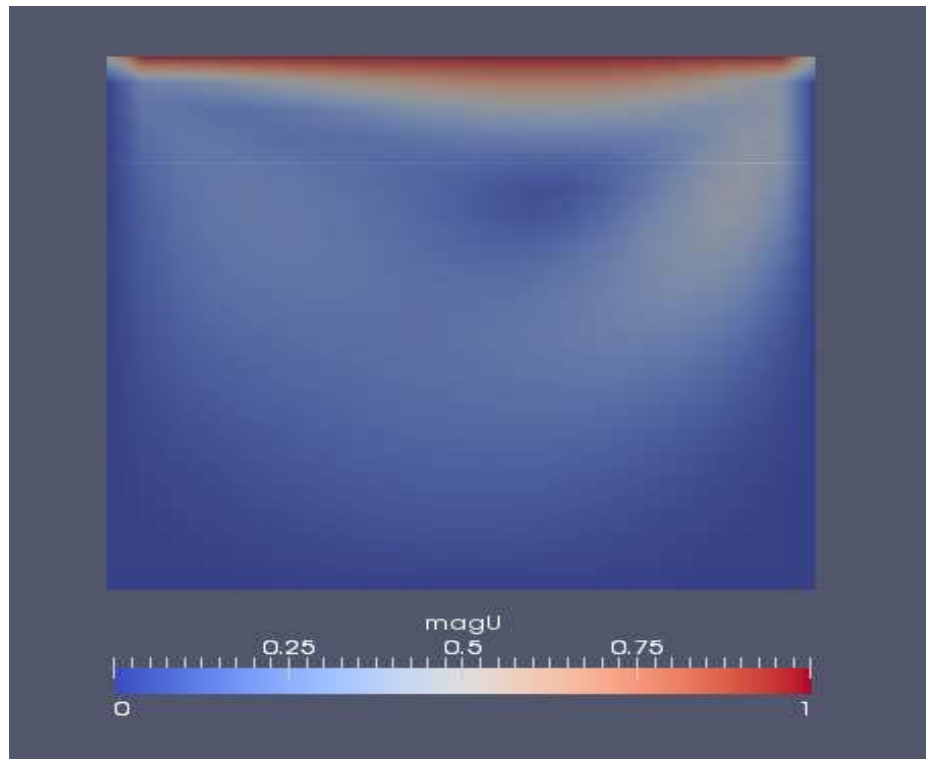
- `foamCalc mag U` is run from the case directory

- The domain shown as a surface representation of the velocity magnitude. Opacity at 0.2

- Plot of the velocity along the line created at position shown in figure.

plateHole
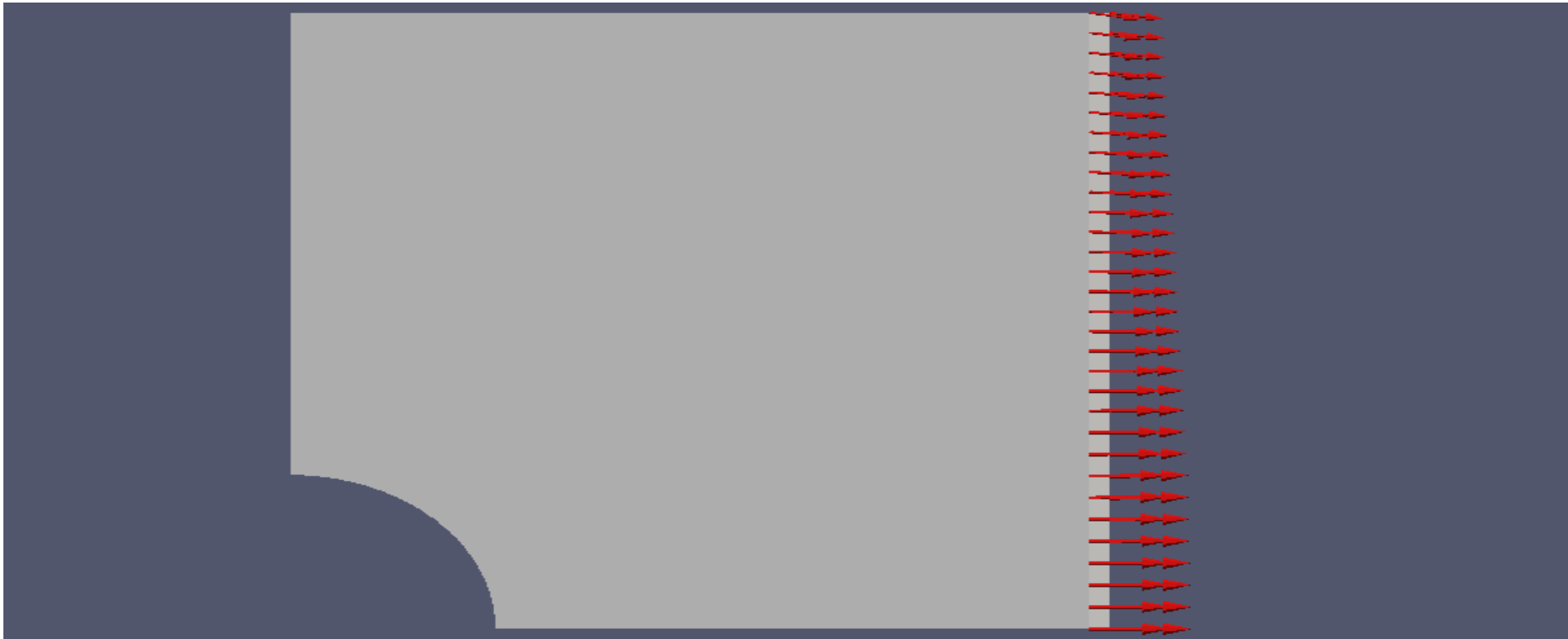
- Domain as "Solid Color", opacity at 0.5

- A "Glyph" filter is created on a clip located just to the left of the right side edge.

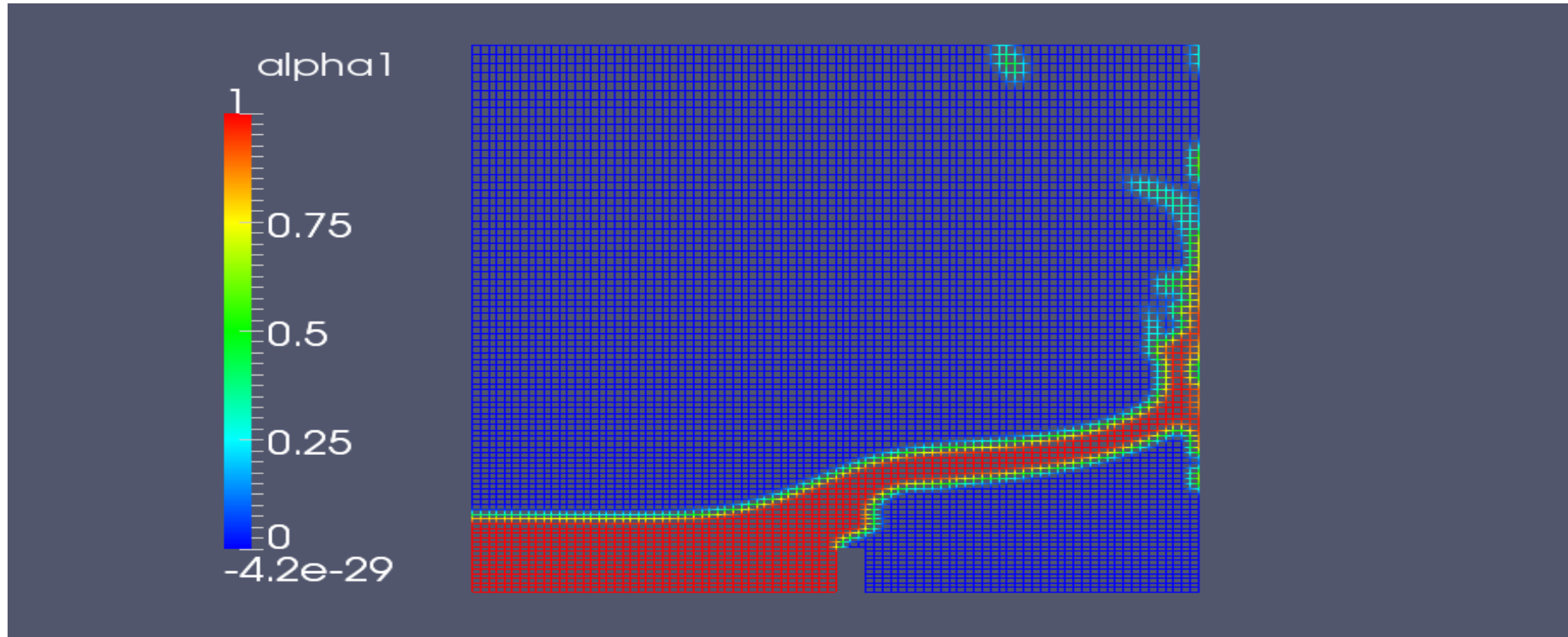- The glyphs size represent the displacement.

damBreak
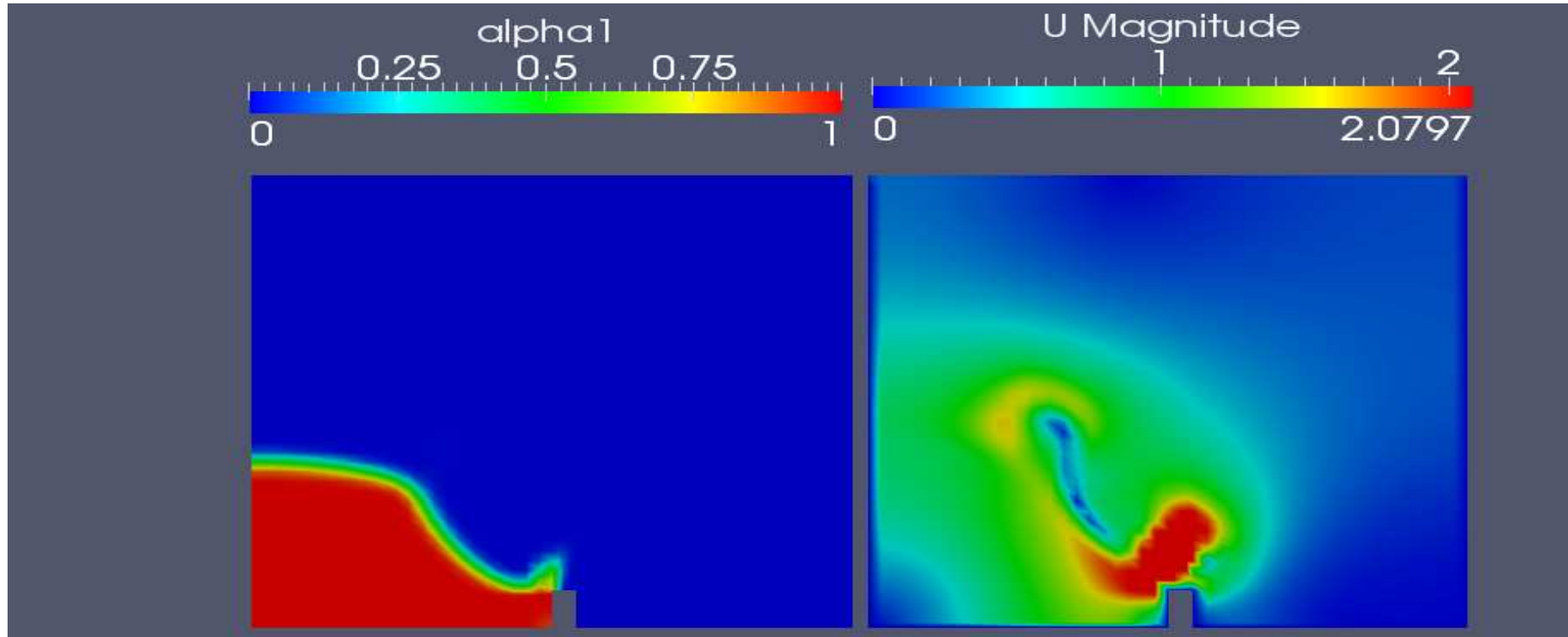
- damBreak.OpenFOAM created with `touch` before opening paraFoam.

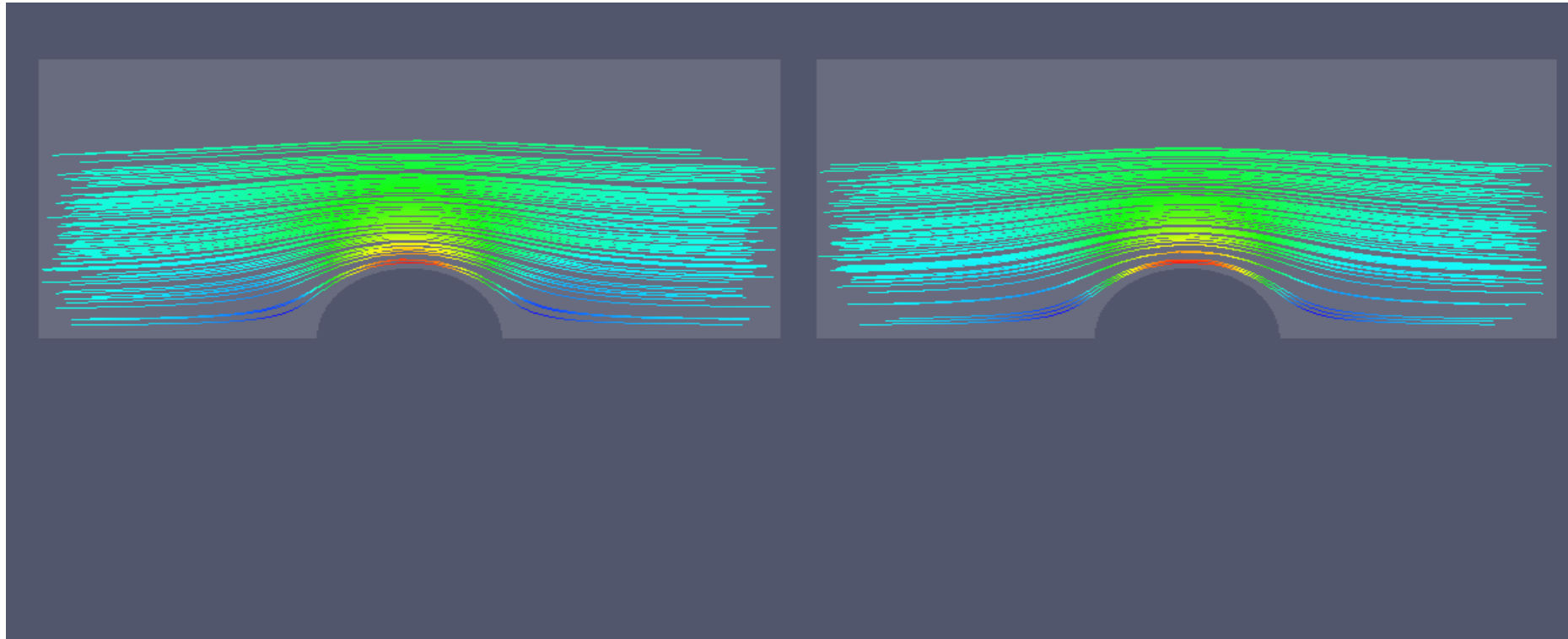- Surface plots of pressure and phase composition at 0.5 s.

damBreakFine

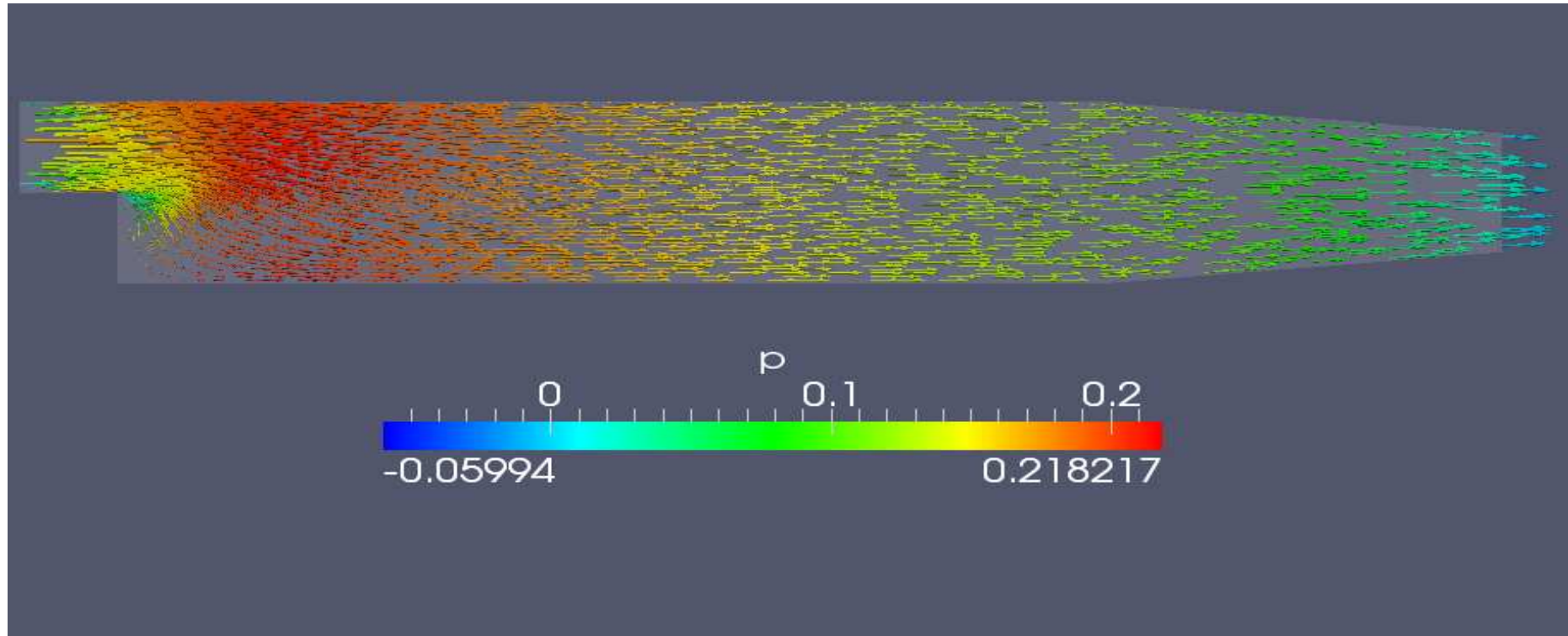- The domain represented as wireframe, colored by phase composition.
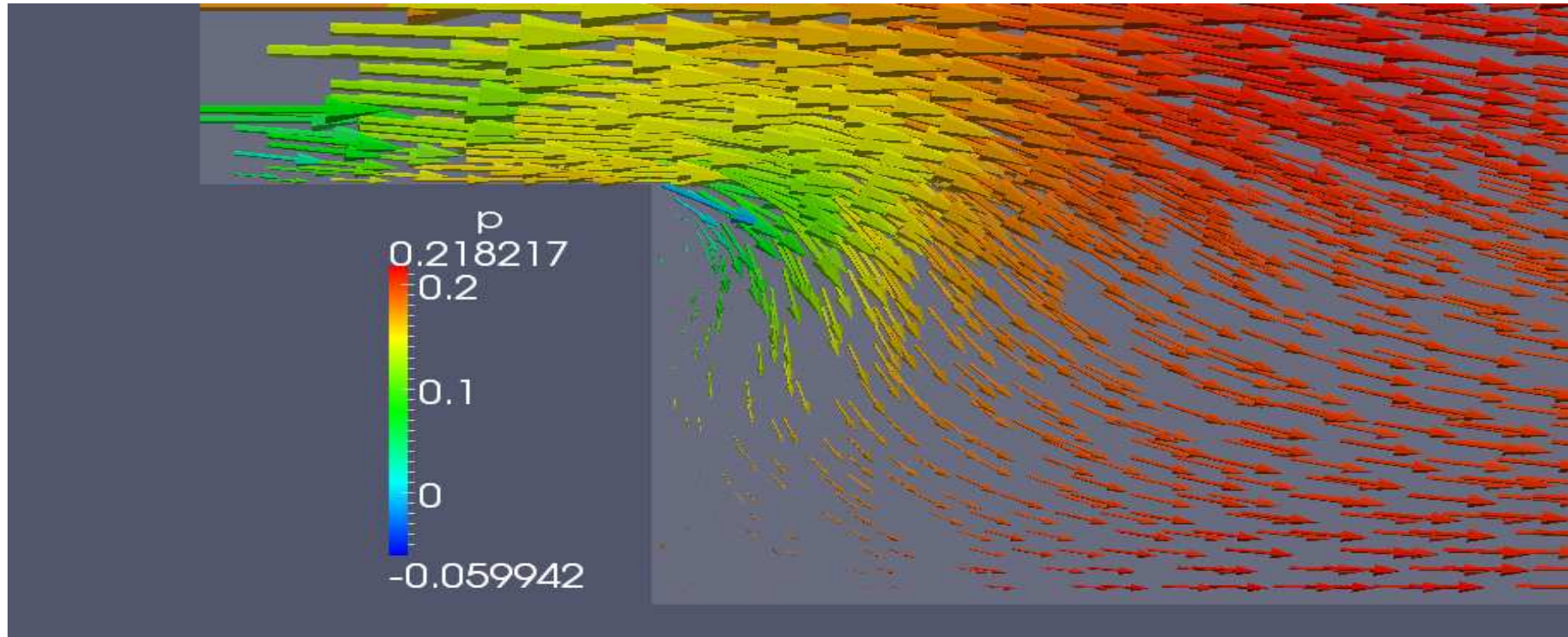
- Refined mesh is easy seen.

cylinder

- Stream tracers of the velocity both for numerical and analytical solution.

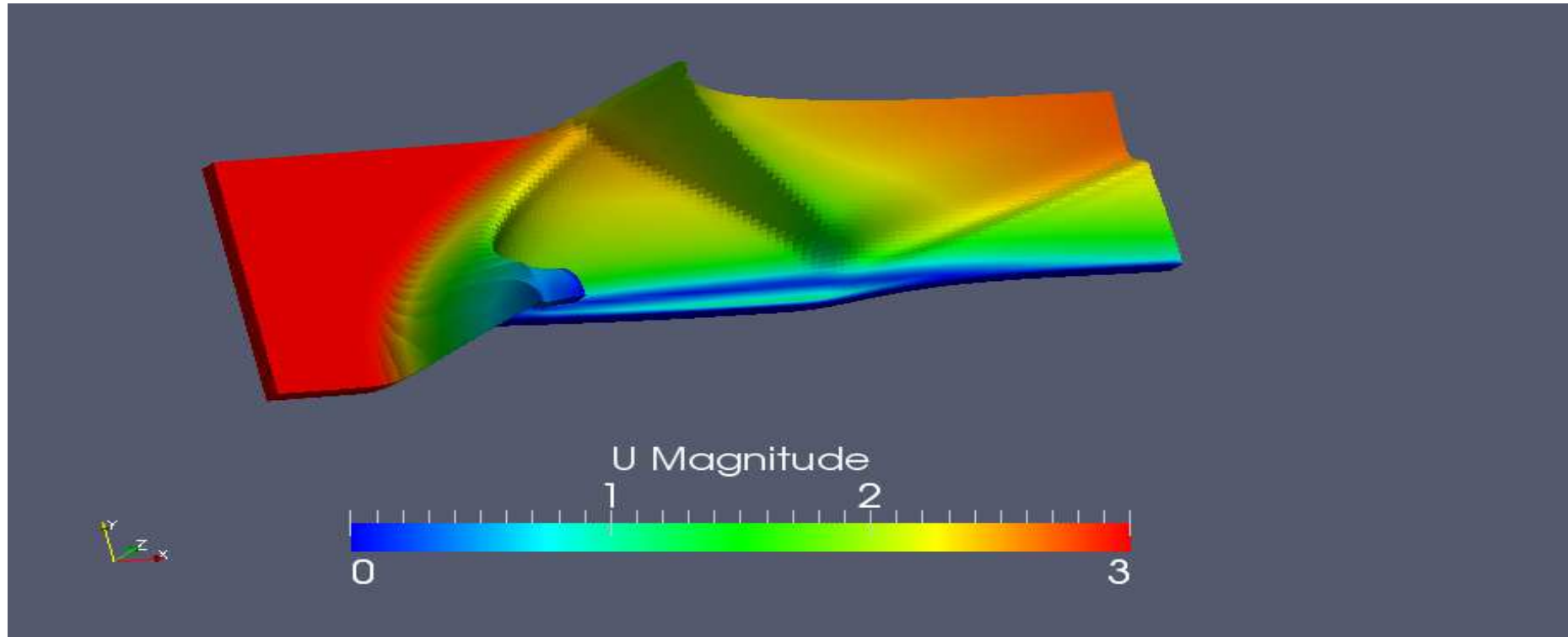- Range-Kutta 4-5 used as "Integrator Type" for stream tracers.

pitzDaily

- Glyphs which colors represent the pressure, while the magnitude represents the velocity.
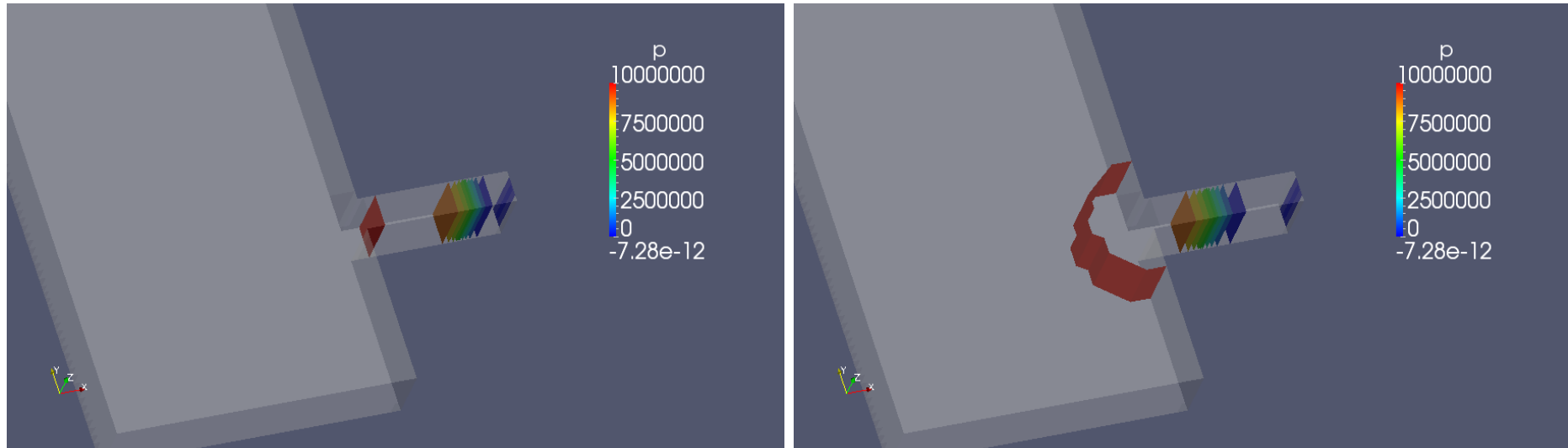
pitzDaily

- Zoom of the glyphs at the corner close to the inlet. "Scale Factor" reduced, "Number Of Points" increased.
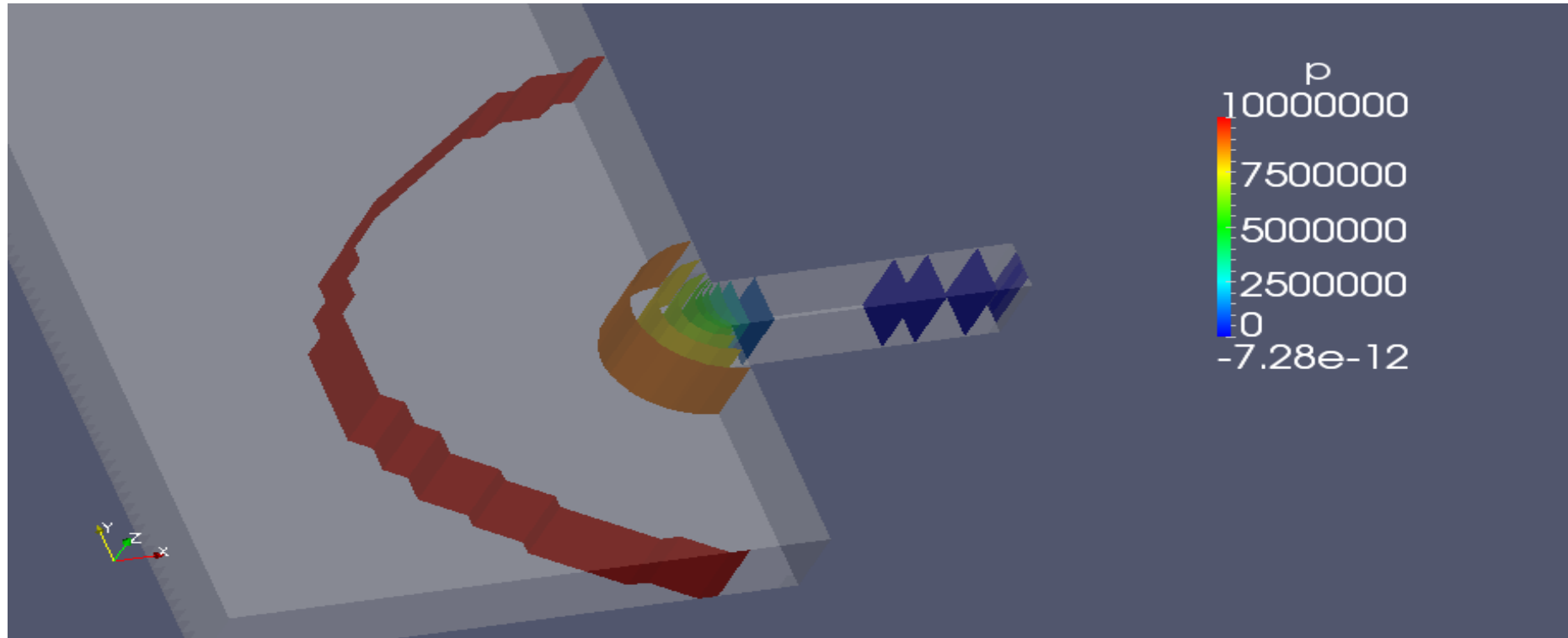
forwardStep

- A "WarpByScalar" filter applied to entire domain. Where the displacement in the z-direction represents pressure and the color of the surface the velocity.

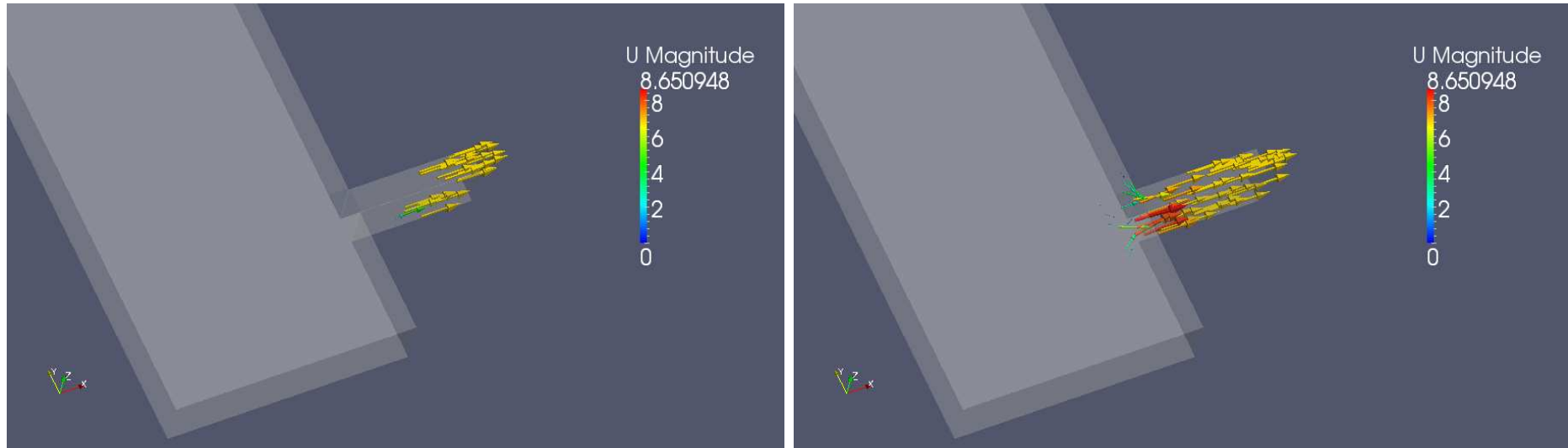- Orientation axis toggled on i "Edit View Options"

decompressionTank

- "Contour" filter created showing 10 pressure contours in a range up to 1e+7.

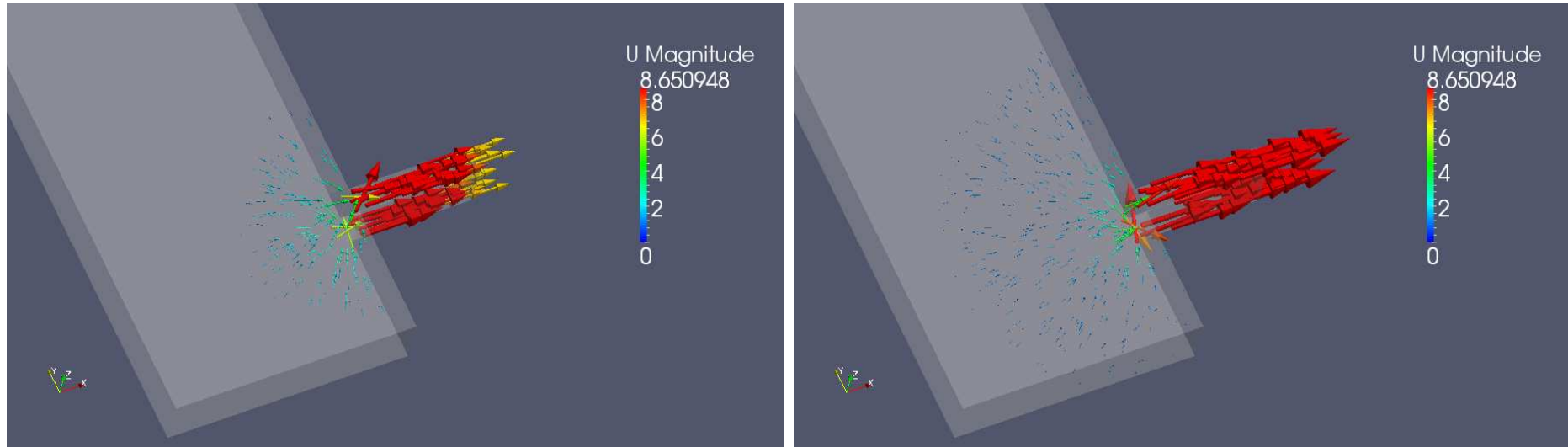- At time 1e-5 and 2e-5.

decompressionTank

- At time 4e-5.

decompressionTankFine

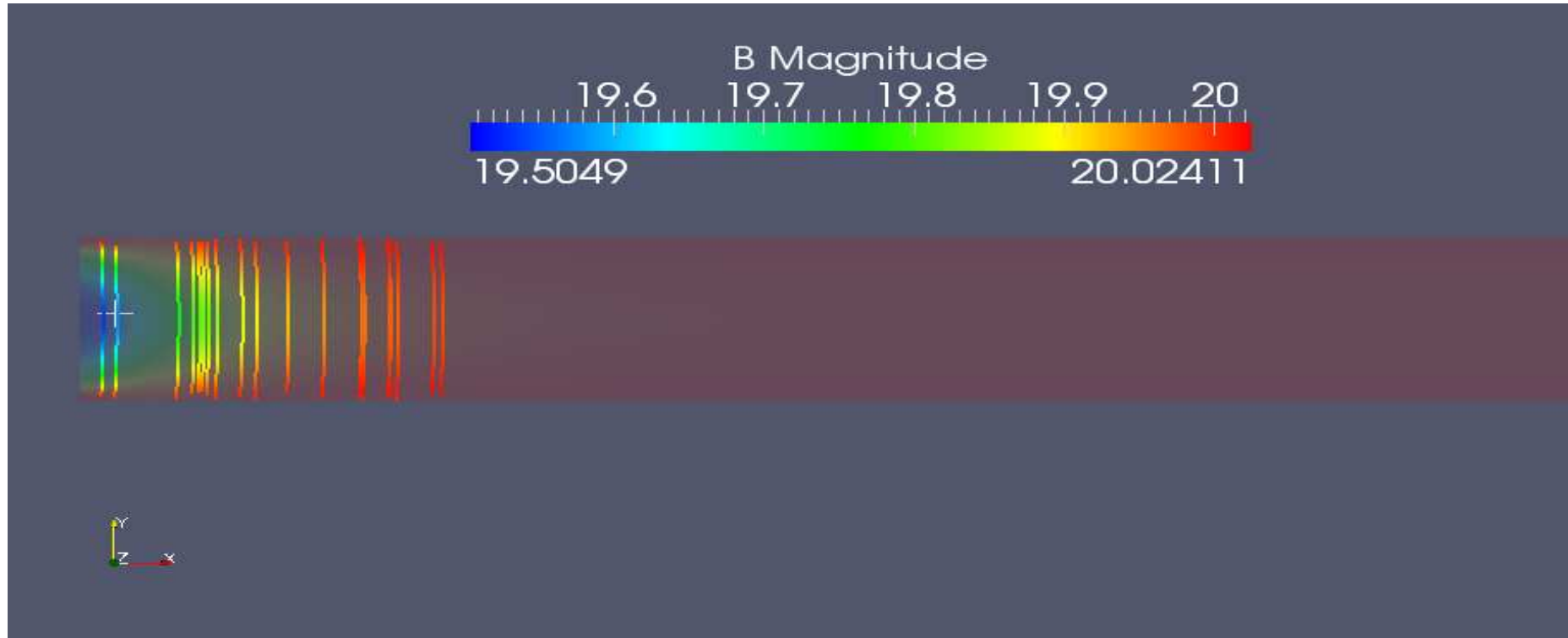- Glyphs with both color and magnitude representing the velocity.

- At time 2e-5 and 4e-5.

decompressionTankFine

- At time 6e-5 and 8e-5.

decompressionTank

- The magnetic density flux, B is plotted over entire domain as surface with opacity of 0.1.

- Stream tracer created to enhance the characteristics of B. "Line Width" = 2.
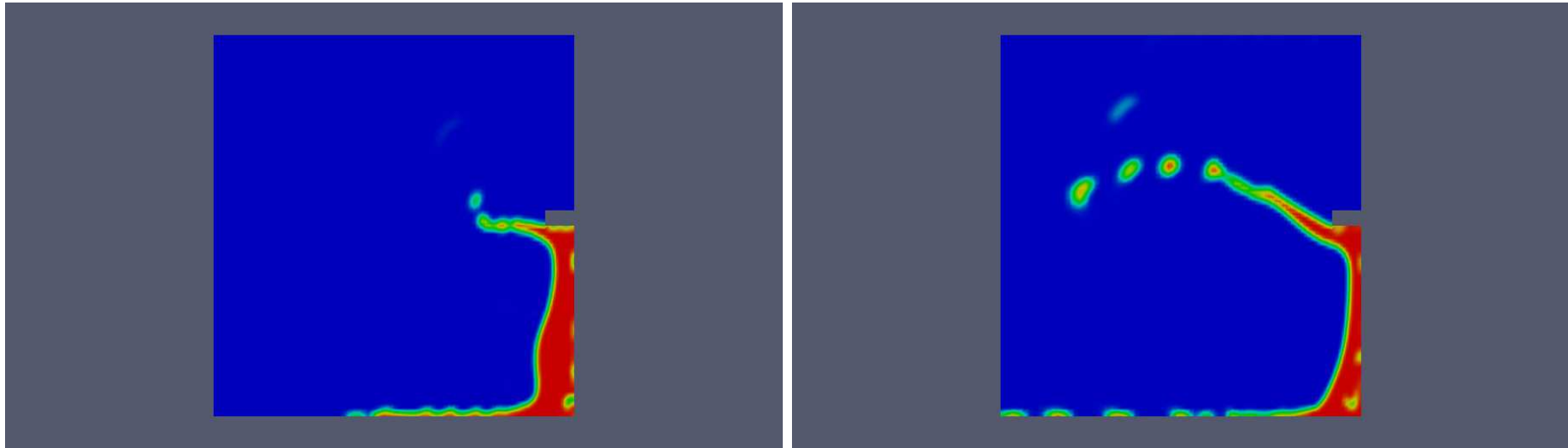
damBreakFineModified

- `blockMesh` is run as usual.

- The `/system/setFieldsDict` is modified so that the bounding box for the initial alpha phase is `box (0.05 .1 -1) (0.1461 0.292 1)`.

- The mesh including the fields is rotated 90 degress with the utility `rotateMesh`
  `rotateMesh -case ./ '(1 0 0)' '(0 1 0)'`.

- Also the direction of the gravity is changed so that it is directed horizontally to the right. Done in `/constant/g` where value is set as:
  `value          ( 9.81 0 0 );`

- Result seen in following slides
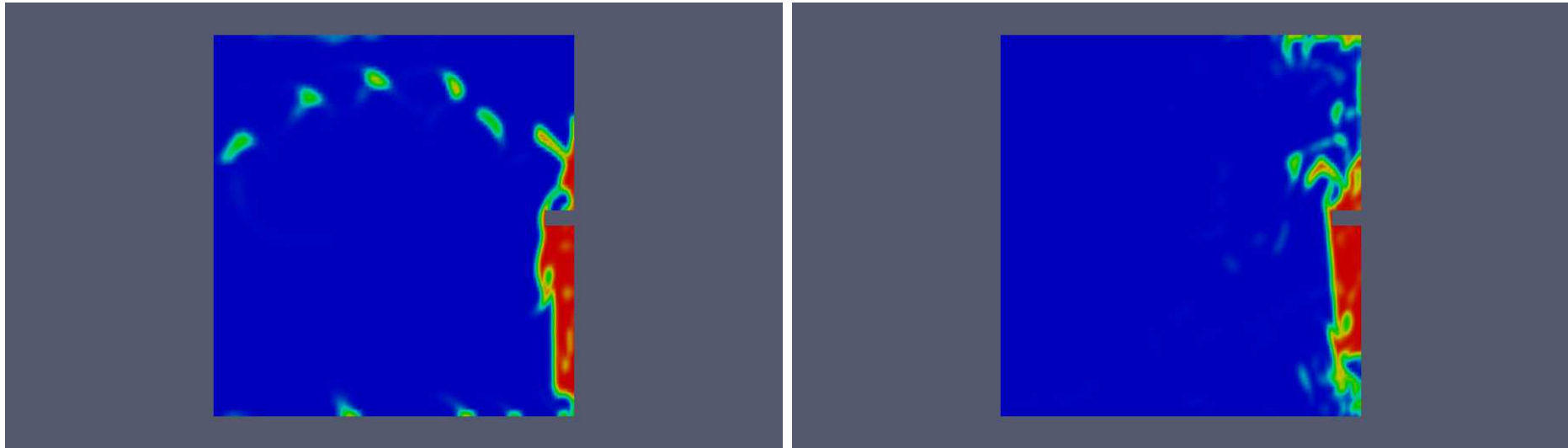
damBreakFineModified

- At 0 and 0.15 s respectively.

damBreakFineModified

- At 0.25 and 0.4 s respectively.

damBreakFineModified

- At 0.6 and 0.95 s respectively.