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Computational Fluid Dynamics

Worksheet 2: Arbitrary Geometries and Energy Transport for the Navier-Stokes Equations

1. Karman Vortex Simulation

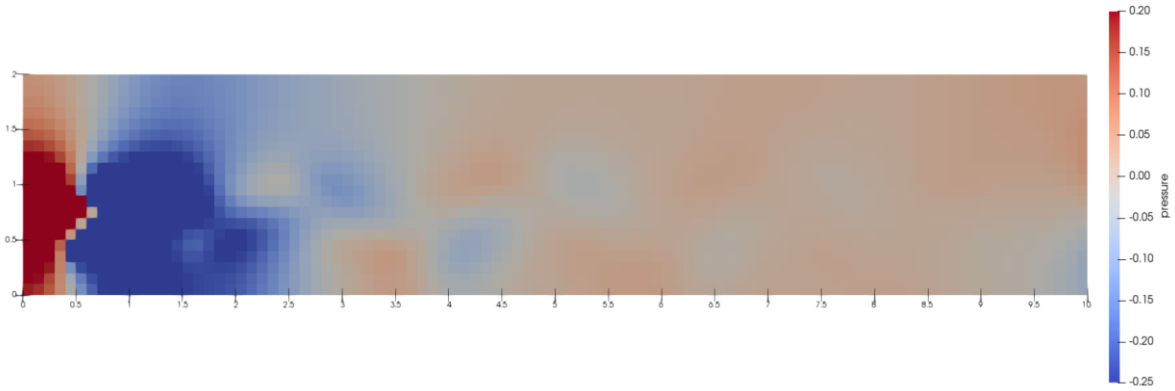

Figure 1.1: Karman Vortex Simulation – pressure field visualisation.

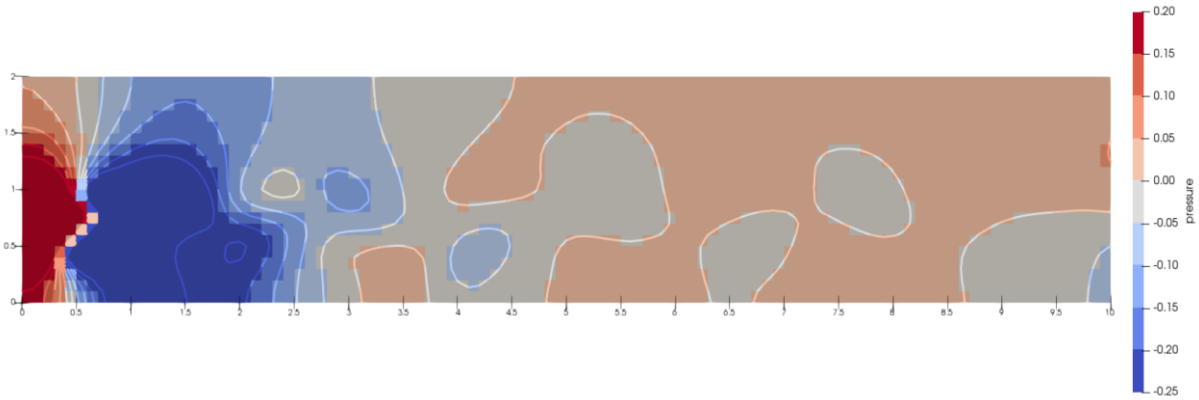

Figure 1.2: Karman Vortex Simulation – pressure field with isobars.

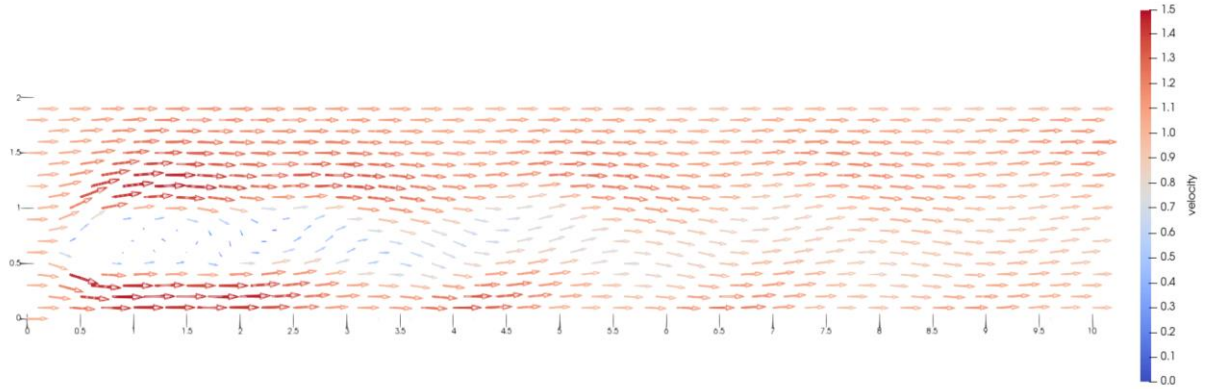

Figure 1.3: Karman Vortex – scaled velocity vector field.

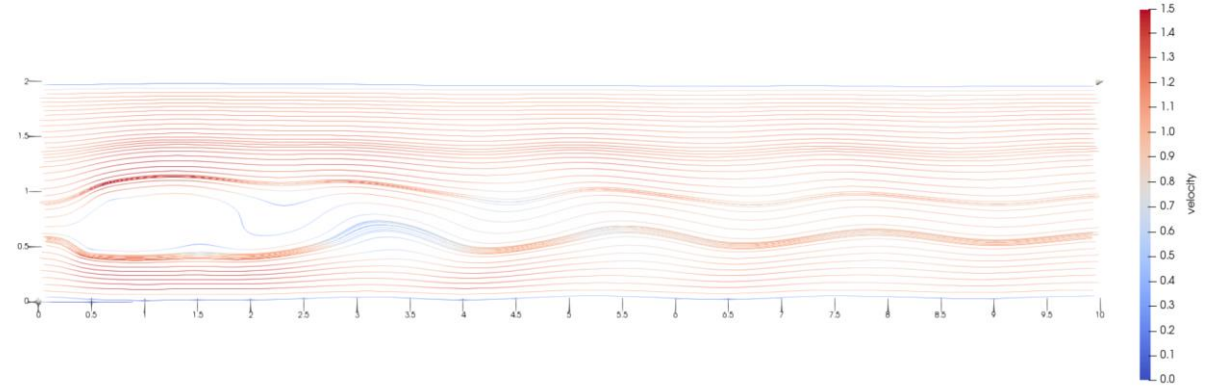

Figure 1.4: Karman Vortex – streamlines visualisation.

2. *Flow Over Step Simulation*

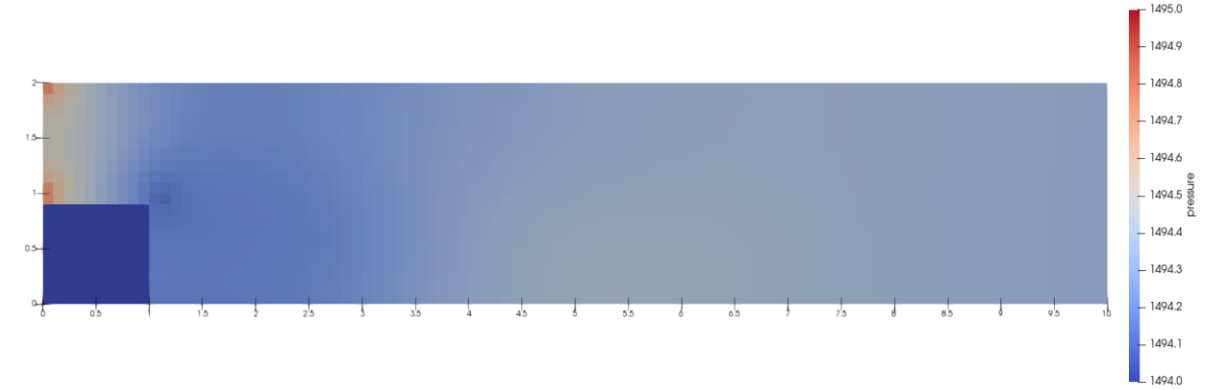

Figure 2.1: Flow Over Step Simulation – pressure field visualisation.

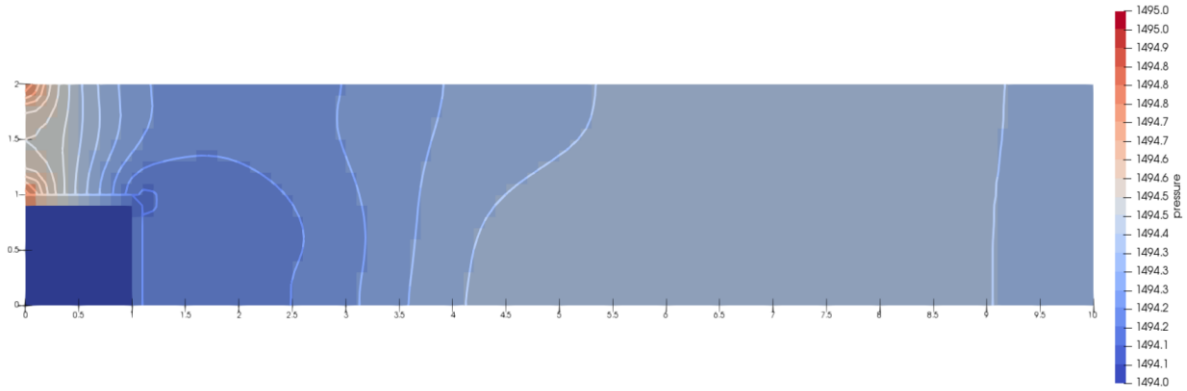

Figure 2.2: Flow Over Step Simulation – pressure field with isobars.

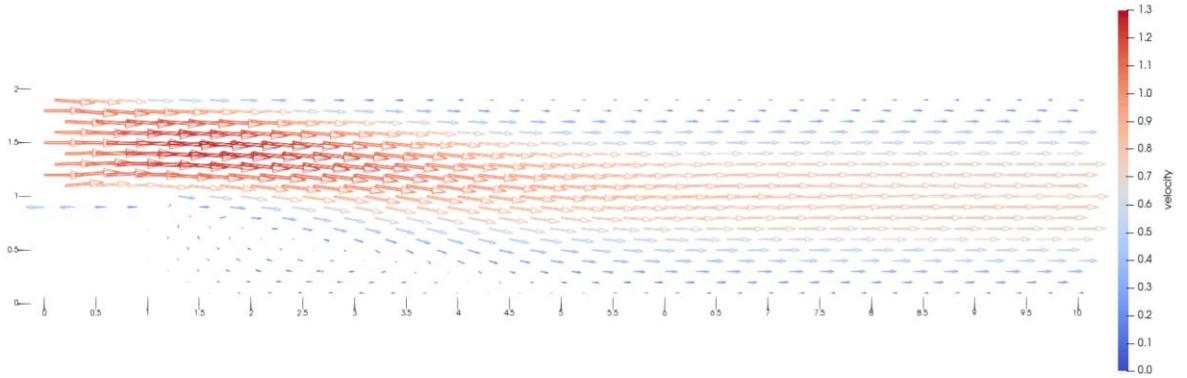

Figure 2.3: Flow Over Step Simulation – scaled velocity vector field.

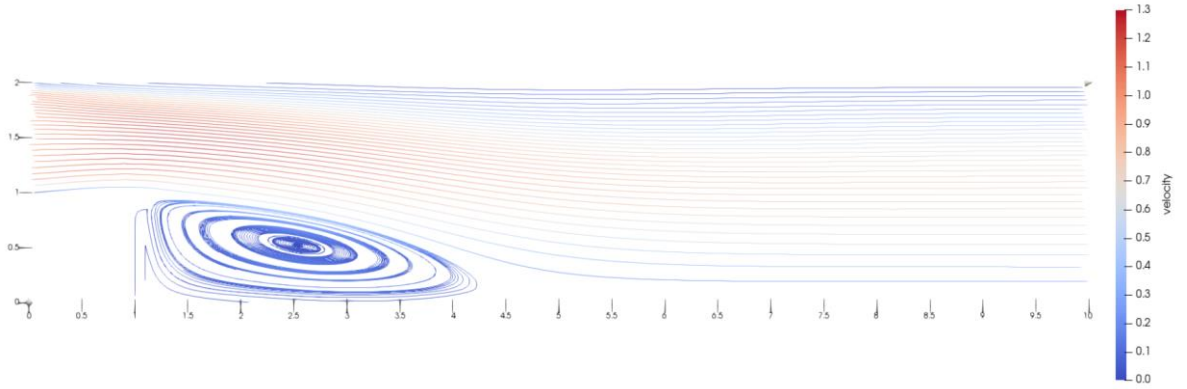

Figure 2.3: Flow Over Step Simulation – streamlines visualisation.

3. *Natural Convection 1 Simulation*

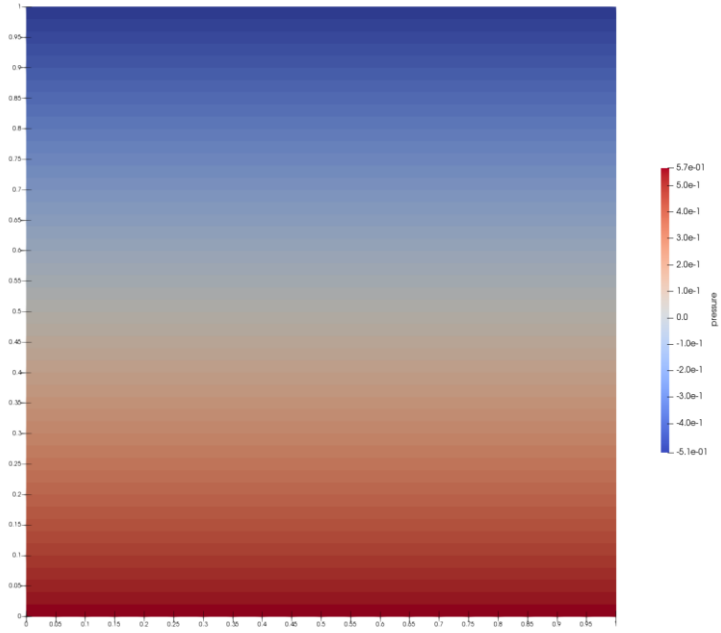

Figure 3.1: Natural Convection 1 Simulation – pressure field visualisation.

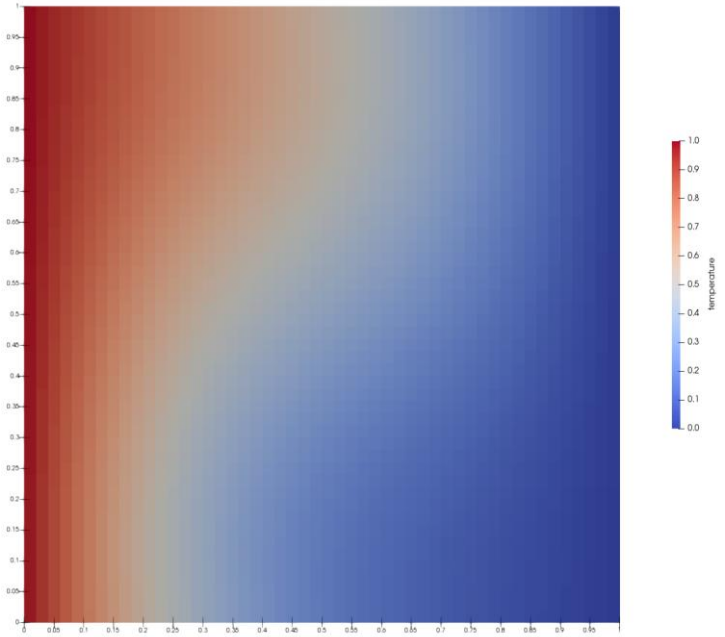

Figure 3.2: Natural Convection 1 Simulation – temperature field visualisation.

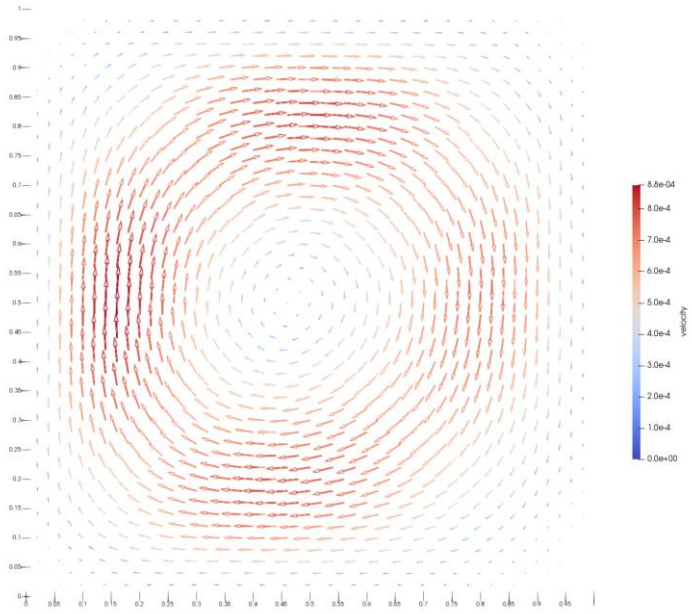

Figure 3.3: Natural Convection 1 Simulation – velocity vector field visualisation.

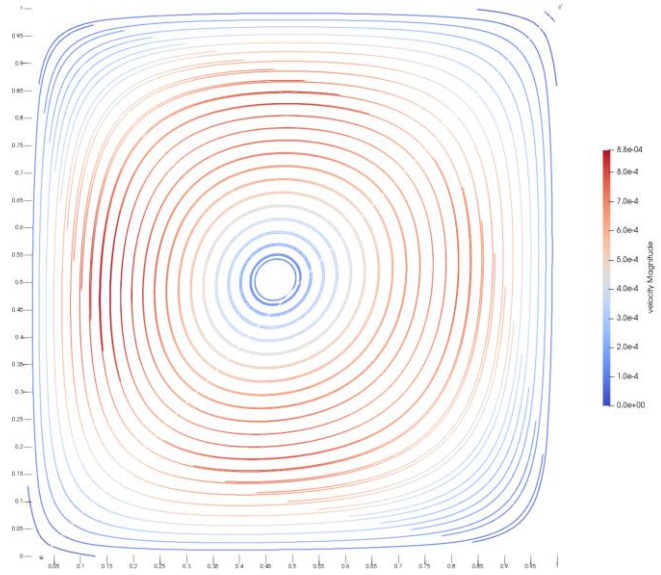

Figure 3.4: Natural Convection 1 Simulation – streamlines visualisation.

4. *Natural Convection 2 Simulation*

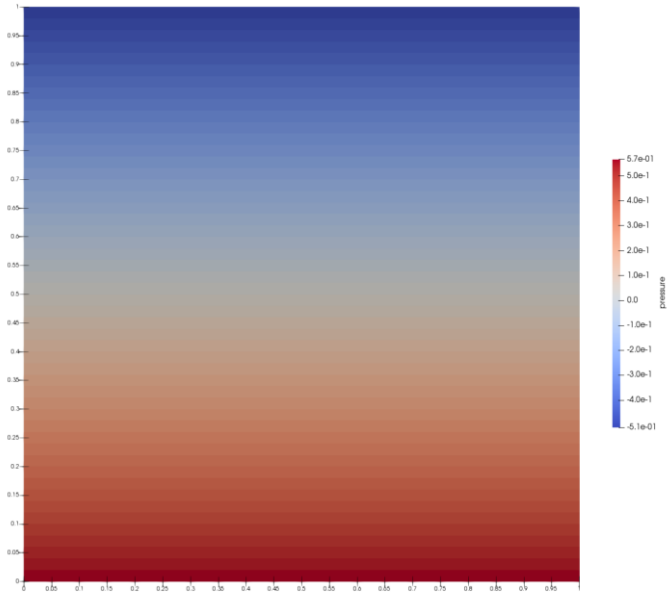

Figure 4.1: Natural Convection 2 Simulation – pressure field visualisation.

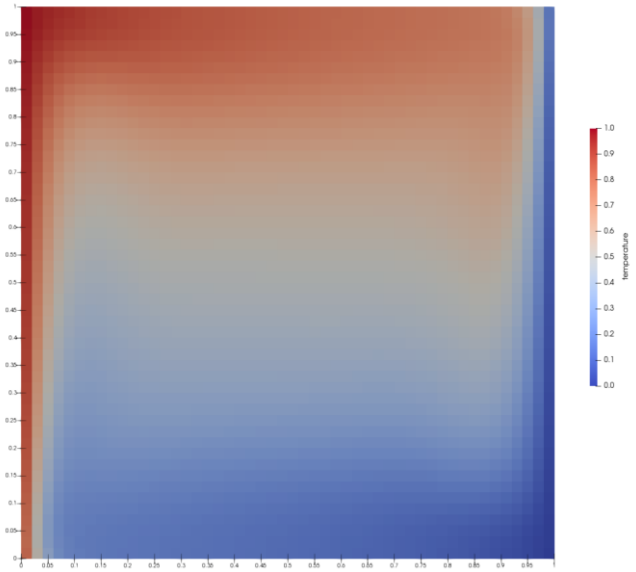

Figure 4.2: Natural Convection 2 Simulation – temperature field visualisation.

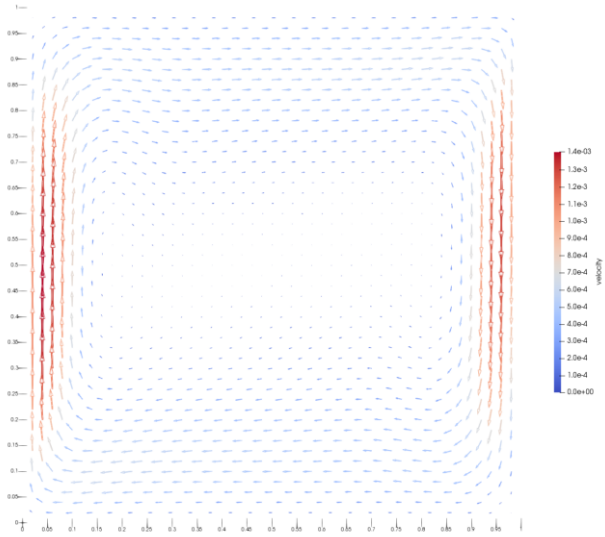

Figure 4.3: Natural Convection 2 Simulation – velocity vector field visualisation.

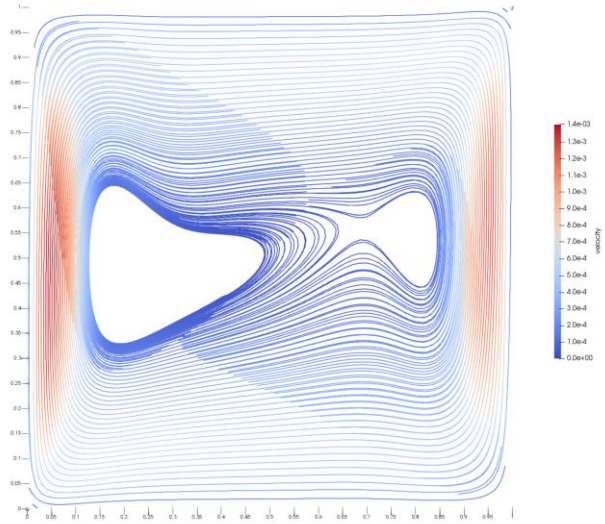

Figure 4.4: Natural Convection 2 Simulation – streamlines.

5. *Fluid Trap 1 Simulation*

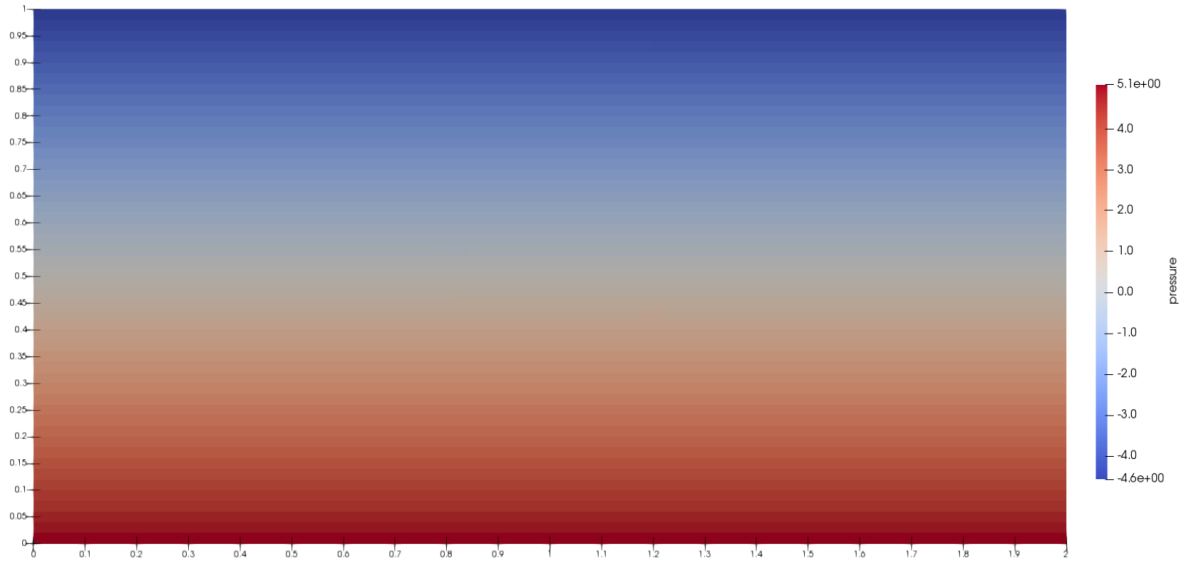

Figure 5.1: Fluid Trap 1 Simulation – pressure field visualisation.

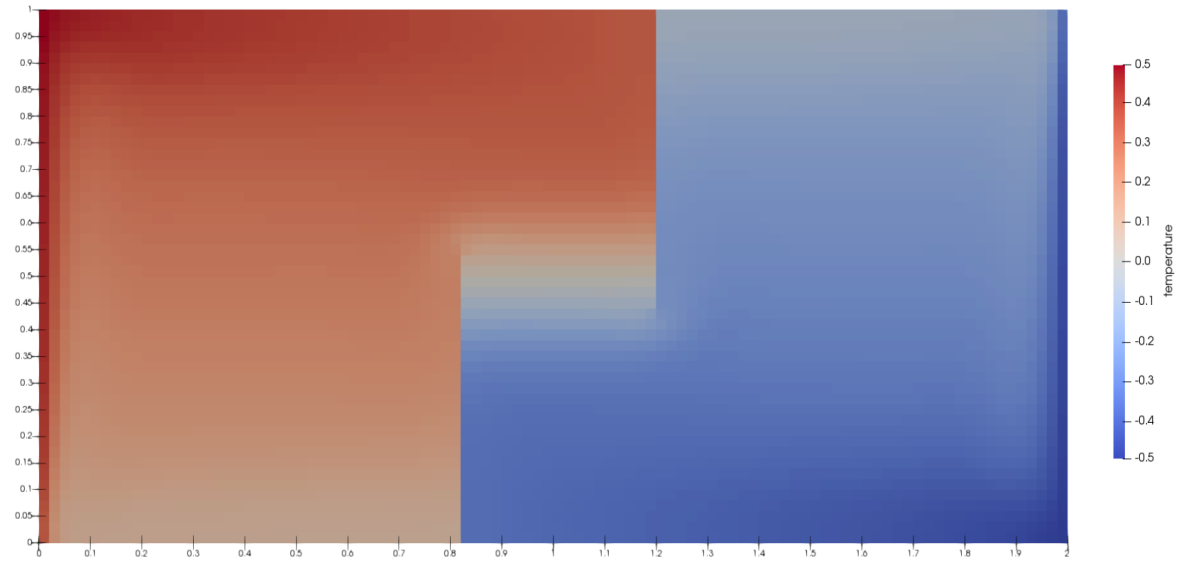

Figure 5.2: Fluid Trap 1 Simulation – temperature field visualisation.

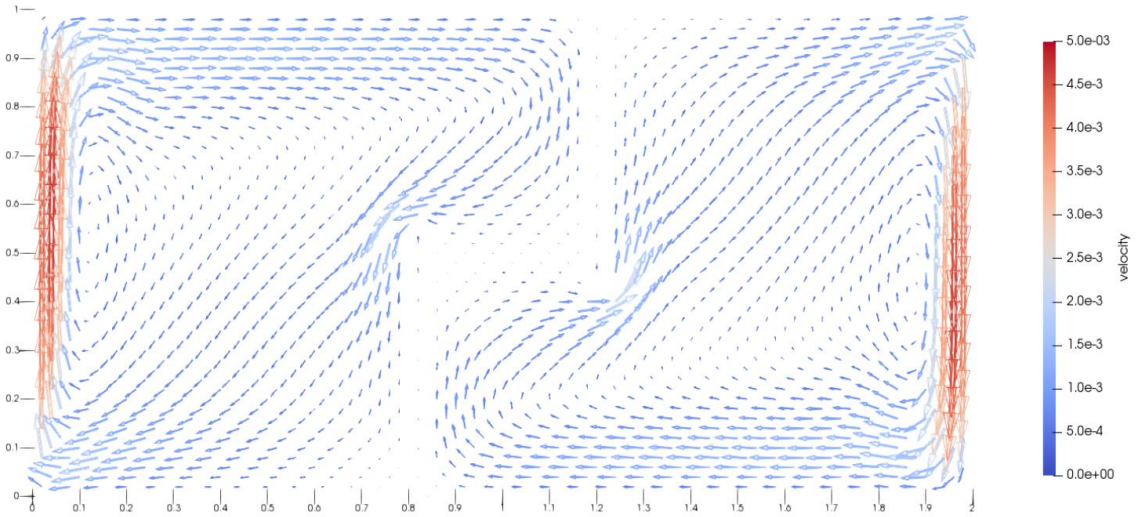

Figure 5.3: Fluid Trap 1 Simulation – velocity vector field visualisation.

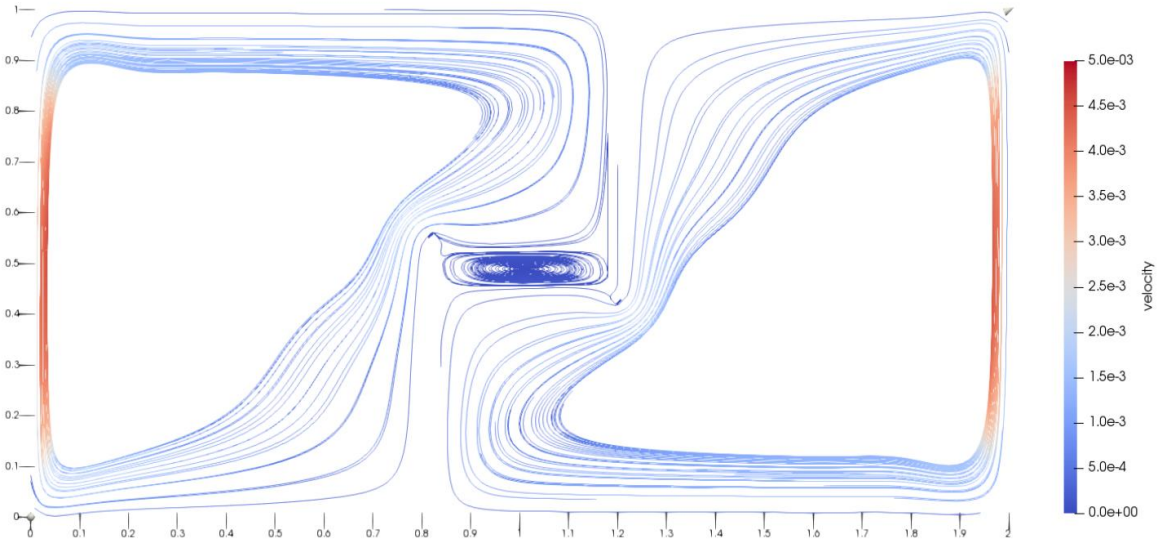

Figure 5.4: Fluid Trap 1 Simulation – streamlines visualisation.

6. *Fluid Trap 2 Simulation*

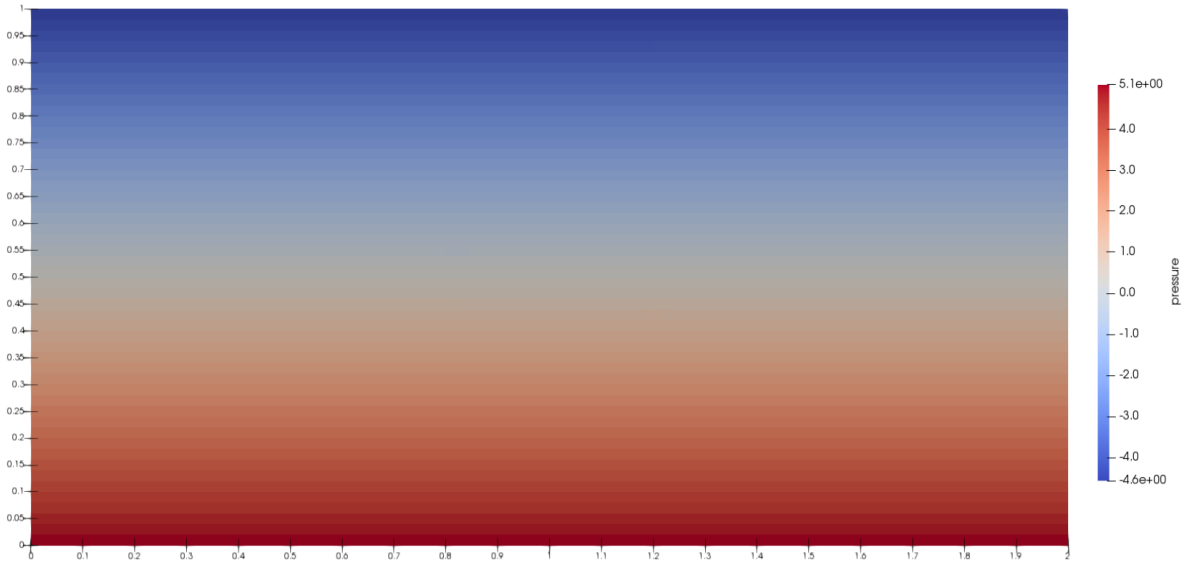

Figure 6.1: Fluid Trap 2 Simulation – pressure field visualisation.

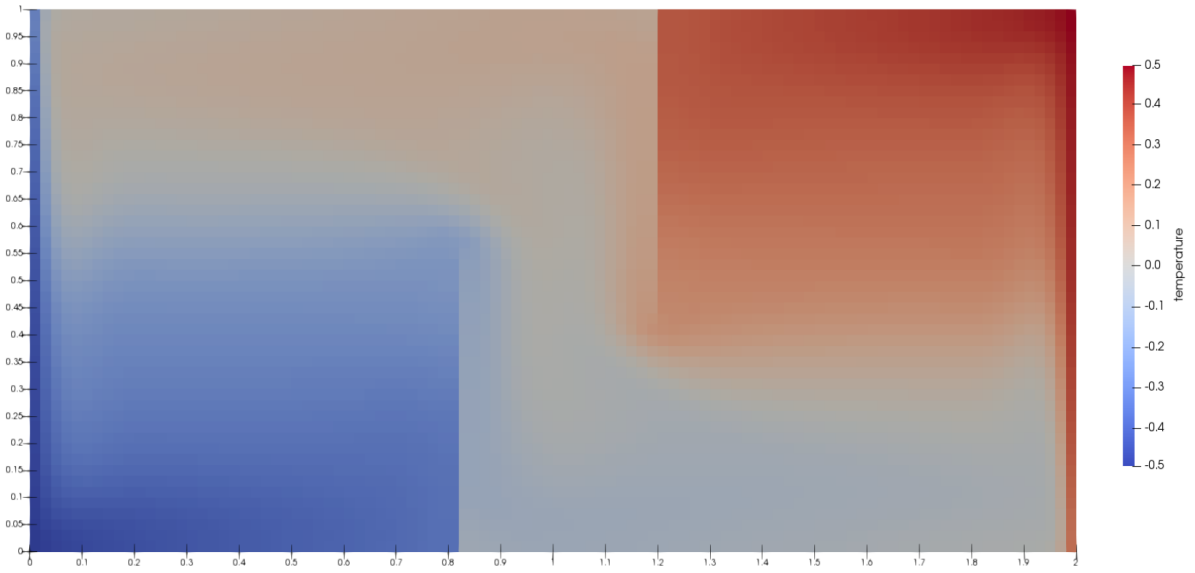

Figure 6.2: Fluid Trap 2 Simulation – temperature field visualisation.

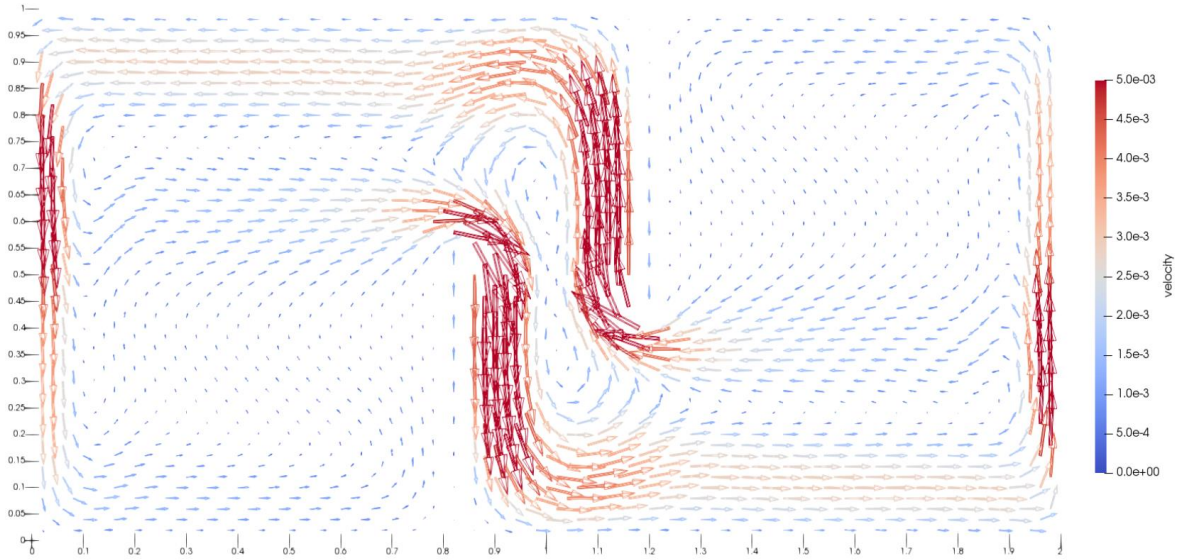

Figure 6.3: Fluid Trap 2 Simulation – velocity vector field visualisation.

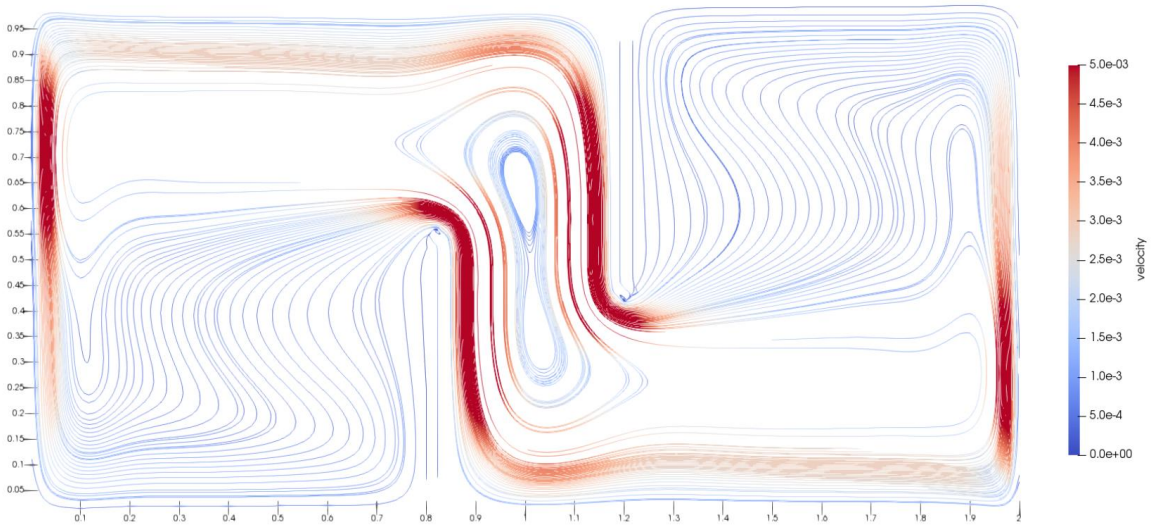

Figure 6.4: Fluid Trap 2 Simulation – streamlines visualisation.

7. *Rayleigh-Benard Convection Simulation*

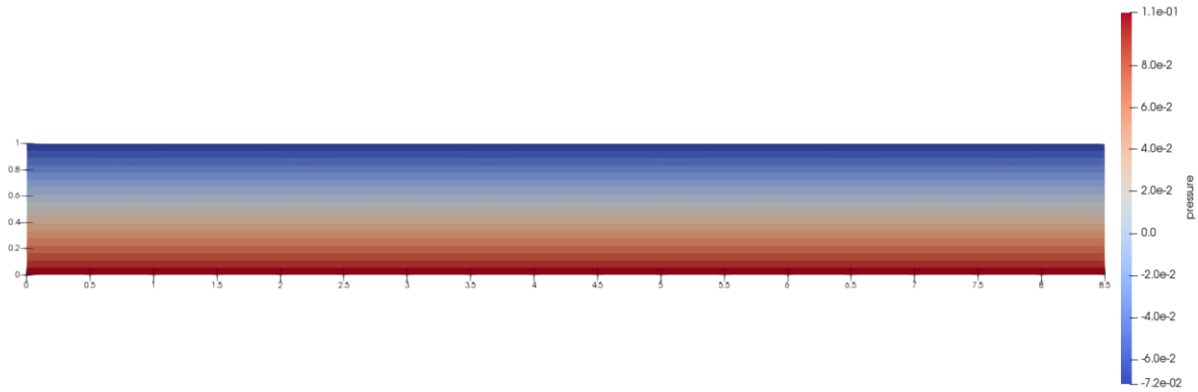

Figure 7.1: Rayleigh-Benard Convection Simulation – pressure field visualisation.

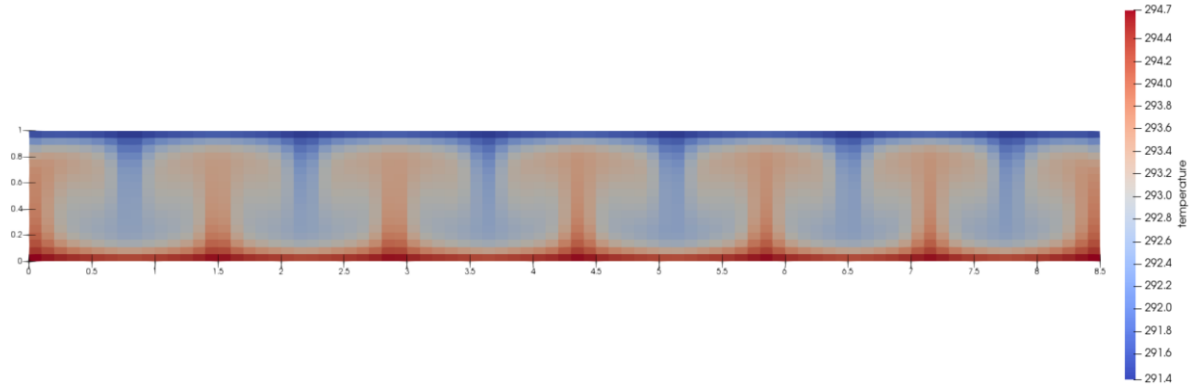

Figure 7.2: Rayleigh-Benard Convection Simulation – temperature field visualisation.

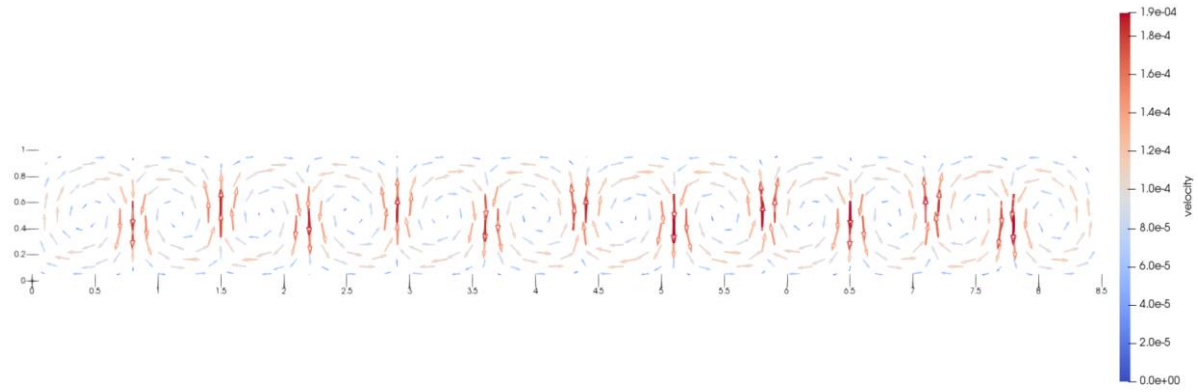

Figure 7.3: Rayleigh-Benard Convection Simulation – velocity vector field visualisation.

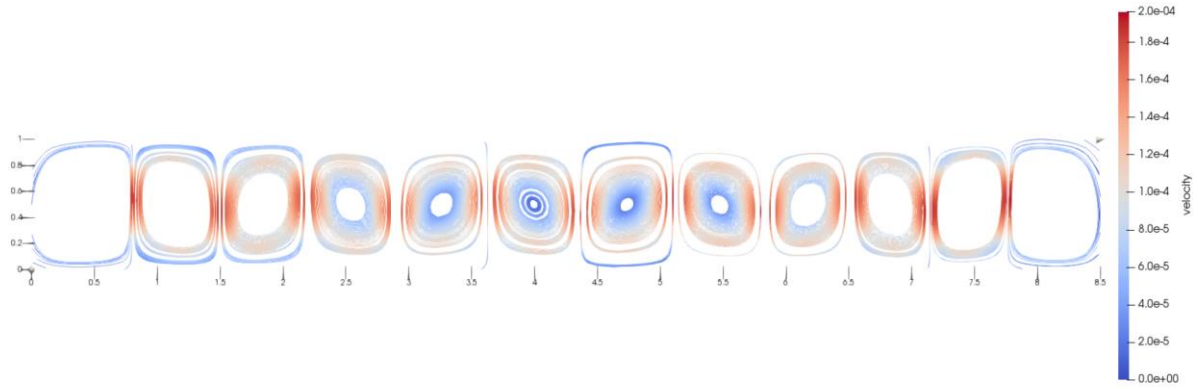

Figure 7.4: Rayleigh-Benard Convection Simulation – streamlines visualisation.