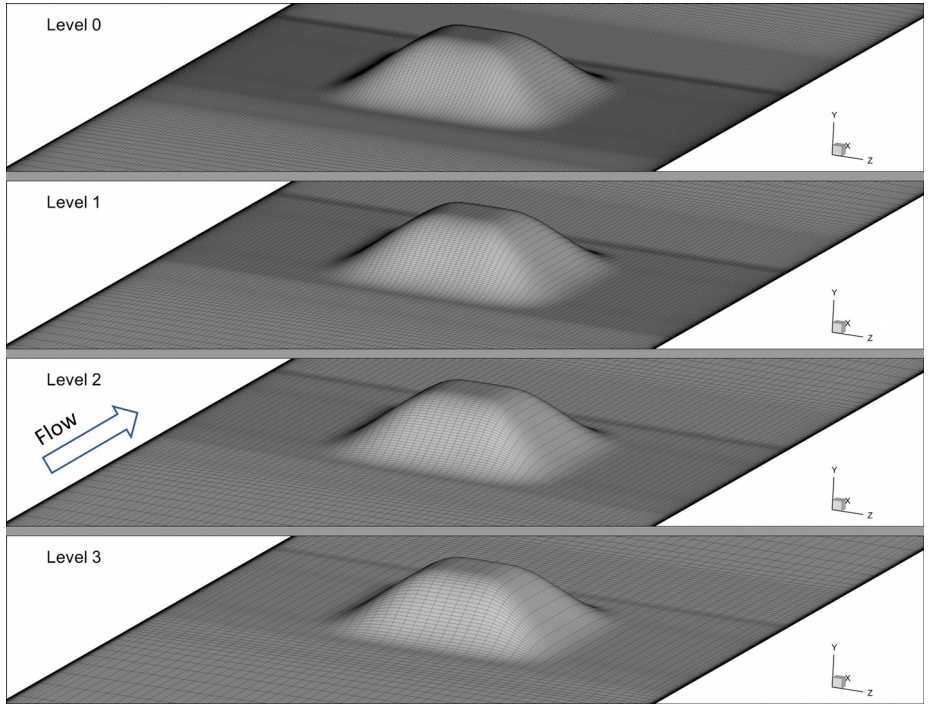
BeVERLI 3D Hill Case: Baseline RANS with VT Mesh

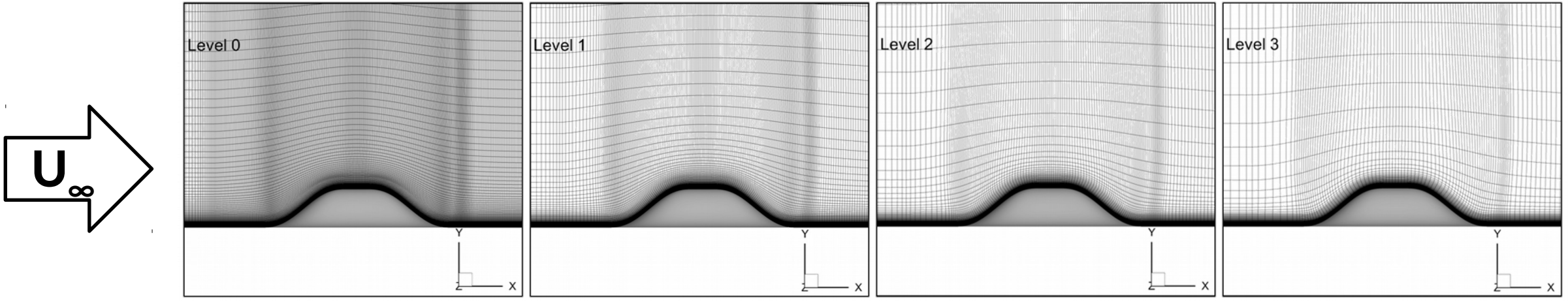
Level 0 Cell Count: 40,663,040 Cells

Level 1 Cell Count: 20,511,250 Cells

Level 2 Cell Count: 10,977,120 Cells

Level 3 Cell Count: 6,031,260 Cells





BeVERLI 3D Hill Case: Cp (baseline RANS fine and coarse mesh results)

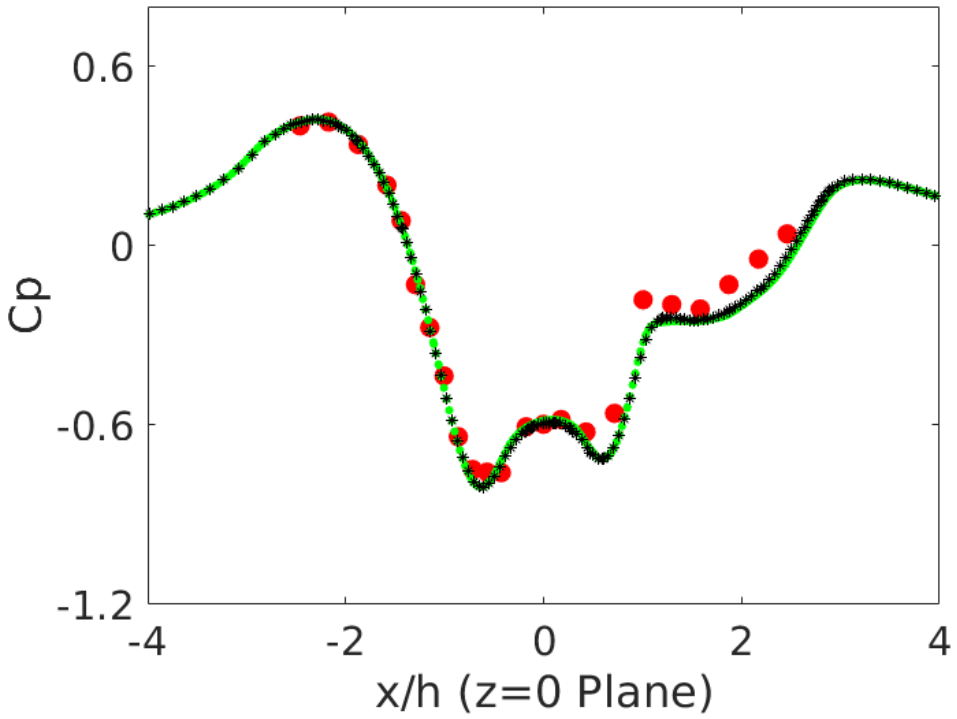
RANS Settings:

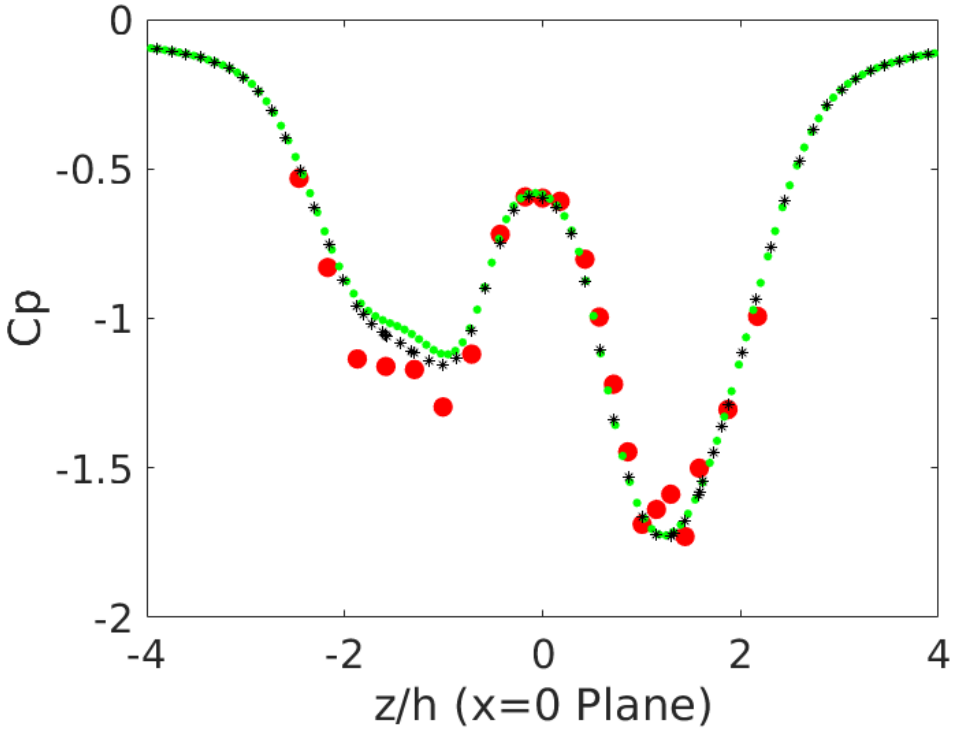
- Configuration : 3D (45-degree yaw angle)
- Solver : OpenFOAM SimpleFOAM
- Turbulence model : baseline k-omega SST
- Time term : steady

VT EXP

UniMelb Baseline RANS 40M VT-Mesh

UniMelb Baseline RANS 11M VT-Mesh



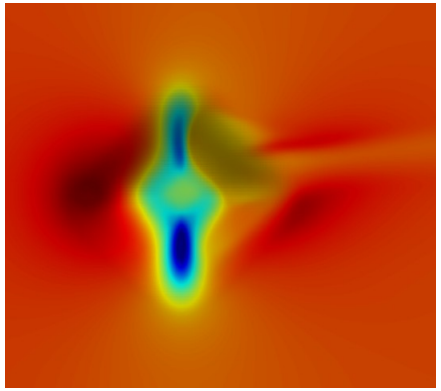


BeVERLI 3D Hill Case: Cp and wallshearstress (baseline RANS fine and coarse mesh results)

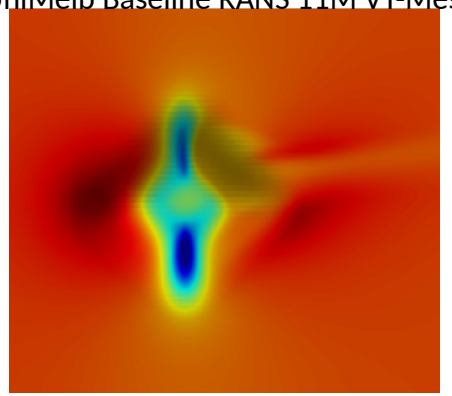
RANS Settings:

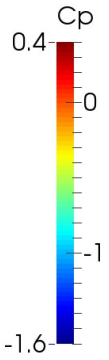
- Configuration : 3D (45-degree yaw angle)
- Solver : OpenFOAM SimpleFOAM
- Turbulence model : baseline k-omega SST
- Time term : steady

UniMelb Baseline RANS 40M VT-Mesh



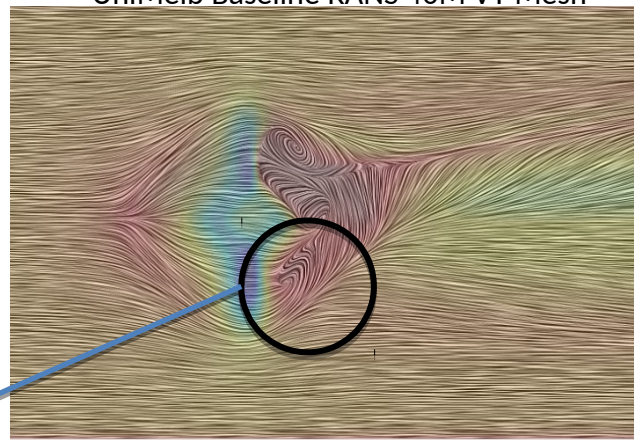
UniMelb Baseline RANS 11M VT-Mesh



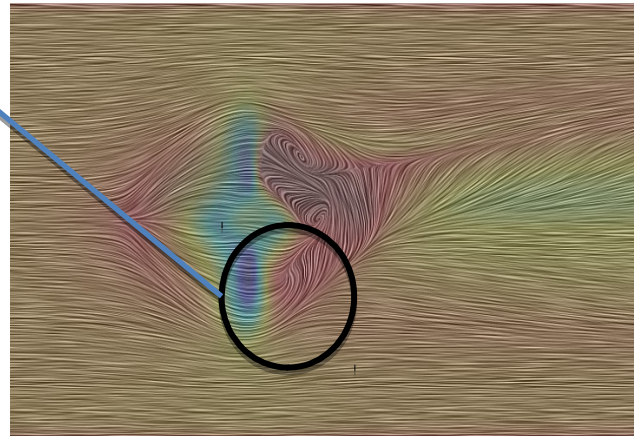


For the coarse mesh, the flow is seen to be recovered with no strong recirculation on the starboard, which contrasts with the fine mesh result.
In my view, we should use 40M mesh for studying other cases with lower Re. What do you think?

UniMelb Baseline RANS 40M VT-Mesh



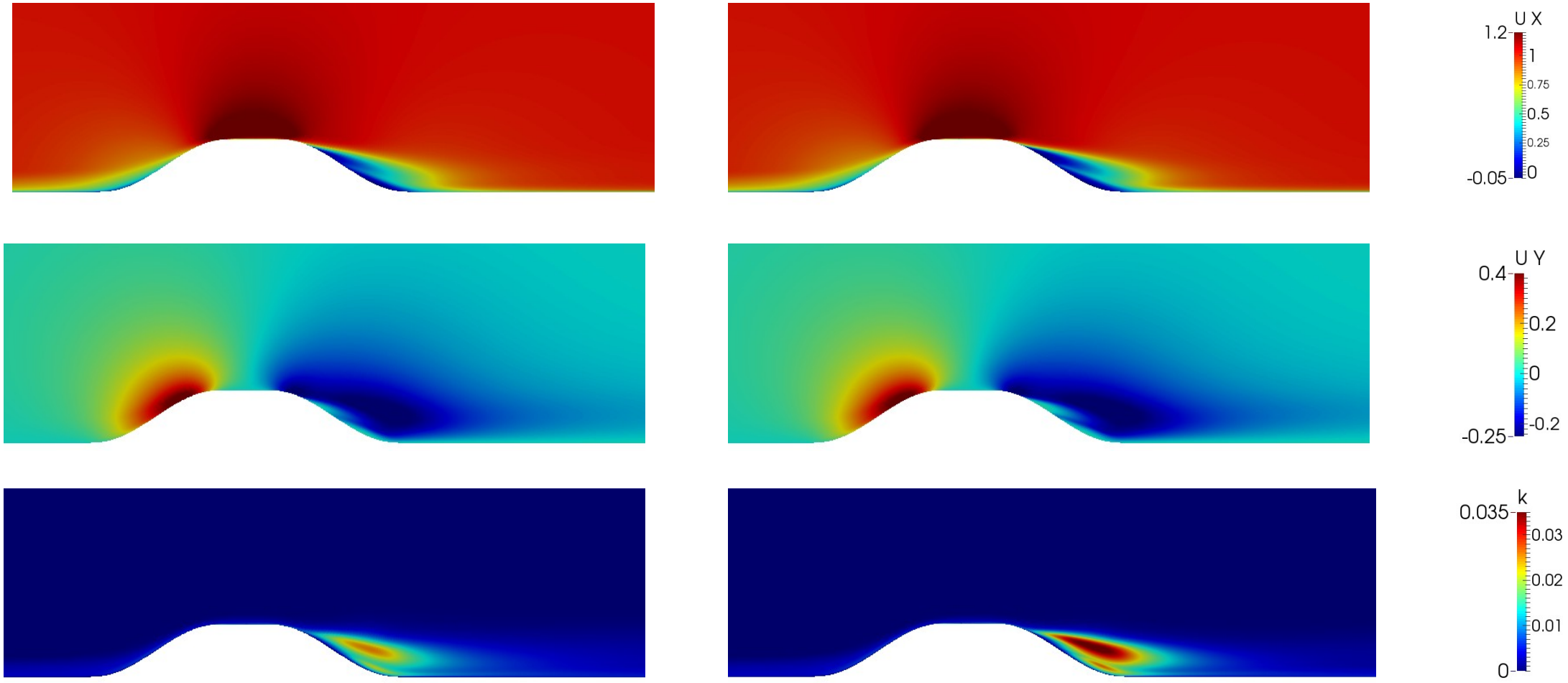
UniMelb Baseline RANS 11M VT-Mesh



BeVERLI 3D Hill Case: (baseline RANS fine and coarse mesh results)

UniMelb Baseline RANS 11M VT-Mesh

UniMelb Baseline RANS 40M VT-Mesh



BeVERLI 3D Hill Case: GEP RANS with VT Mesh

Level 0 Cell Count: 40,663,040 Cells

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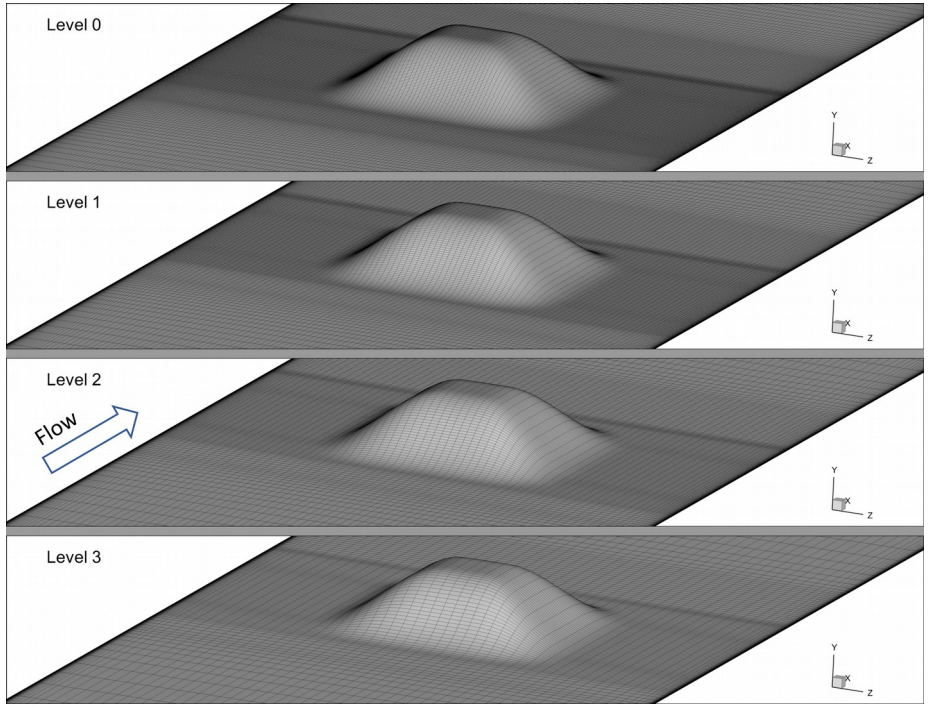
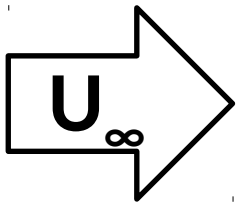
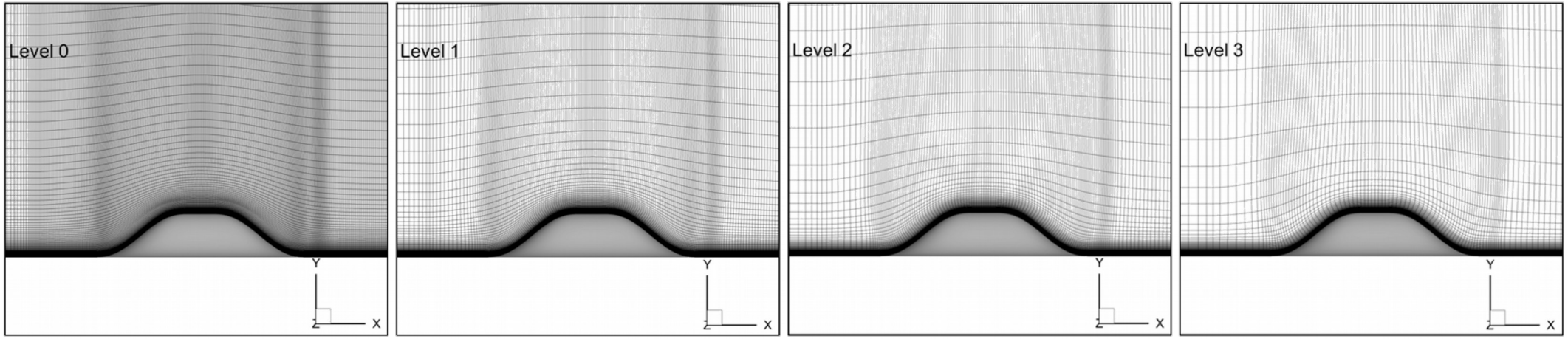




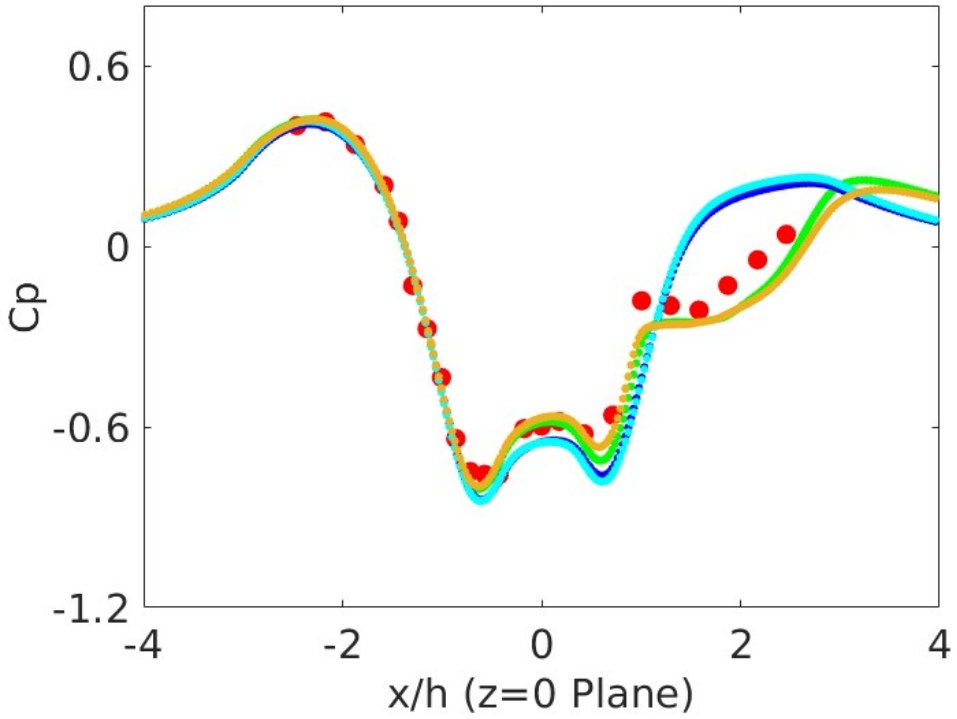


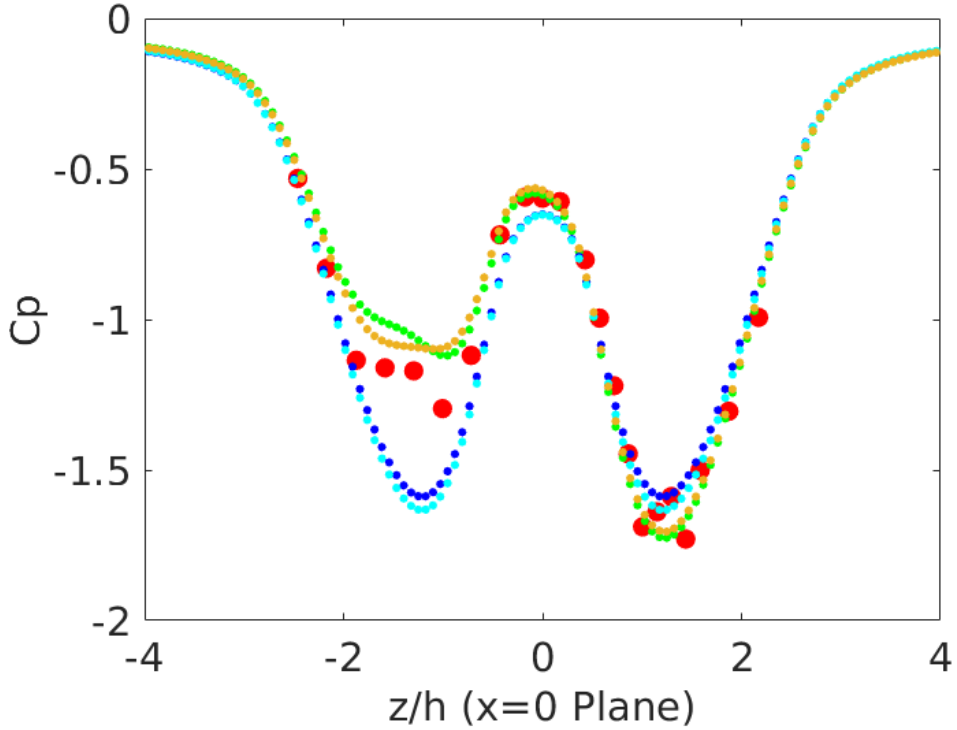
BeVERLI 3D Hill Case: Cp (baseline RANS versus GEP RANS)

RANS Settings:

- Configuration : 3D (45-degree yaw angle)
- Solver : OpenFOAM SimpleFOAM
- Turbulence model : baseline k-omega SST & GEP aij_Rijhat sq. cyl.
- Time term : steady
- Meh size : VT-40M cells

VT EXP
UniMelb Baseline RANS
UniMelb GEP RANS (aij_ON Rij_ON)
UniMelb GEP RANS (aij_OFF Rij_ON)
UniMelb GEP RANS (aij_ON Rij_OFF)



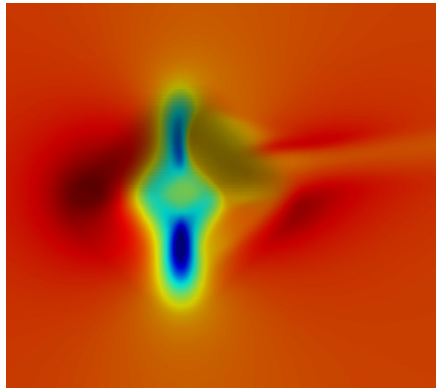


BeVERLI 3D Hill Case: Cp_contour (baseline RANS versus GEP RANS)

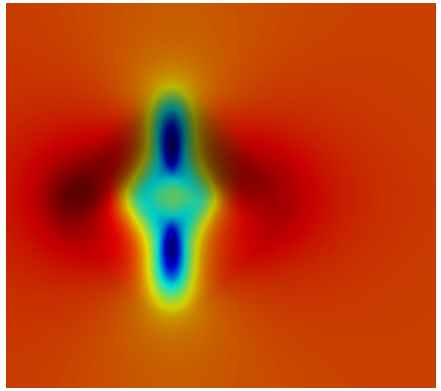
RANS Settings:

- Configuration : 3D (45-degree yaw angle)
- Solver : OpenFOAM SimpleFOAM
- Turbulence model : baseline k-omega SST & GEP aij_Rijhat sq. cyl.
- Time term : steady
- Meh size : VT-40M cells

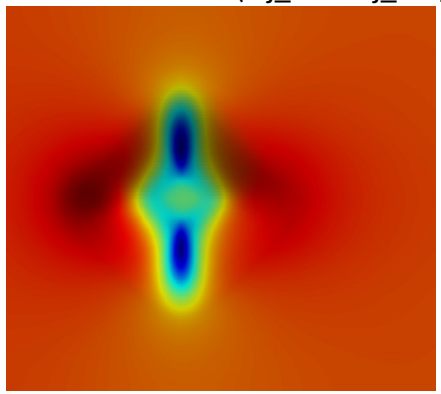
UniMelb Baseline RANS



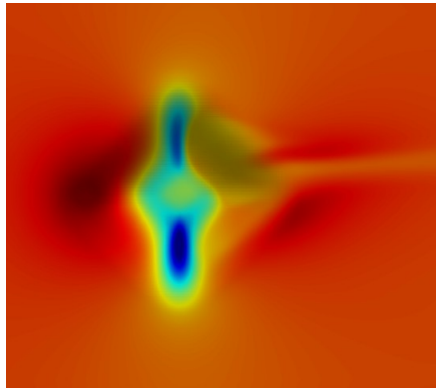
UniMelb GEP RANS (aij_ON Rij_ON)

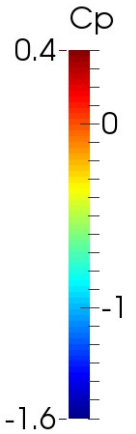


UniMelb GEP RANS (aij_OFF Rij_ON)



UniMelb GEP RANS (aij_ON Rij_OFF)



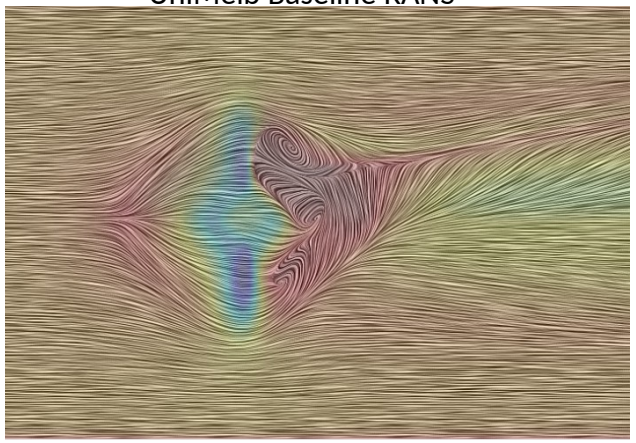


BeVERLI 3D Hill Case: wallShearStress (baseline RANS versus GEP RANS)

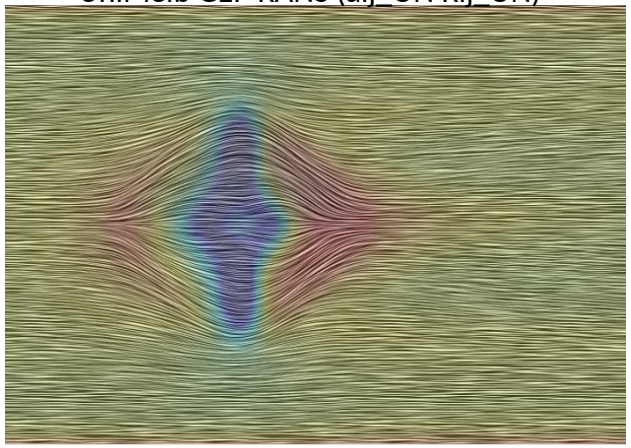
RANS Settings:

- Configuration : 3D (45-degree yaw angle)
- Solver : OpenFOAM SimpleFOAM
- Turbulence model : baseline k-omega SST & GEP aij_Rijhat sq. cyl.
- Time term : steady
- Meh size : VT-40M cells

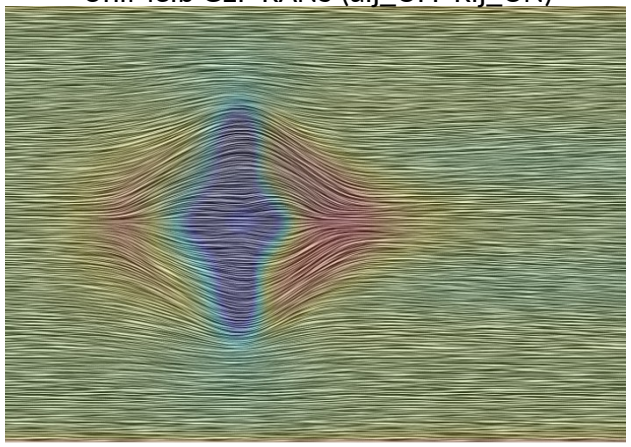
UniMelb Baseline RANS



UniMelb GEP RANS (aij_ON Rij_ON)



UniMelb GEP RANS (aij_OFF Rij_ON)



UniMelb GEP RANS (aij_ON Rij_OFF)