

Turbulent Flow over Backward-Facing Step

Pranay Kumar Pandey¹

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

Conclusions

- In this report, comparison is done for the contours, plot. residuals obtained in simulation with **kEpsilon Turbulence Model** i.e **Case A1**.
- Rest of the 5 cases, have been upgraded to latest versions.
- To keep a short and concise report, only one case was considered.
- Contours are obtained for final timestep that is 4000s.
- For comparison purposes, the plot available in the report of the case already i.e solved previously has been bordered with Red Color with thickness 1. It also has Figure title attached to it.
- From the simulation, we infer that the contours of old and new simulations match. Thus, case has been migrated to new version of openfoam errorfree.

■ CASE A1 - kEpsilon Turbulence Model

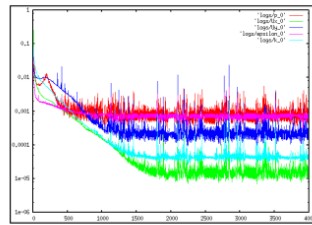


Fig.4 Monitoring convergence using residual logs

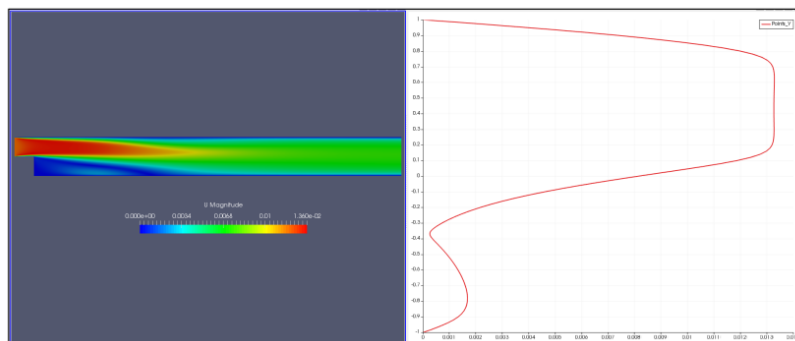


Fig.5 Velocity profile at a cross-section created by a line (3 m from the inlet)

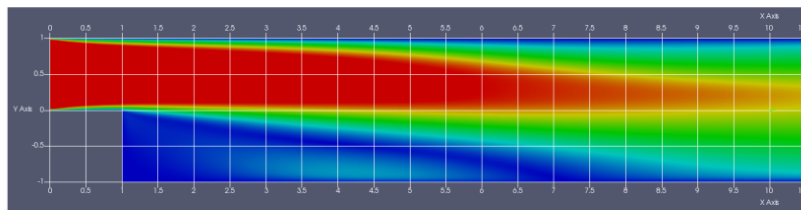
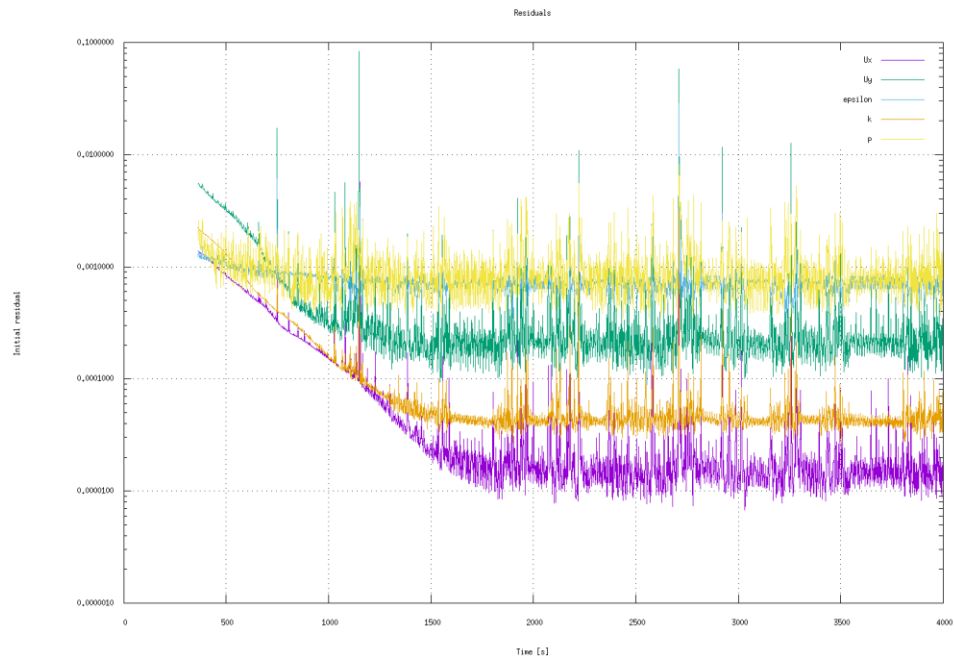
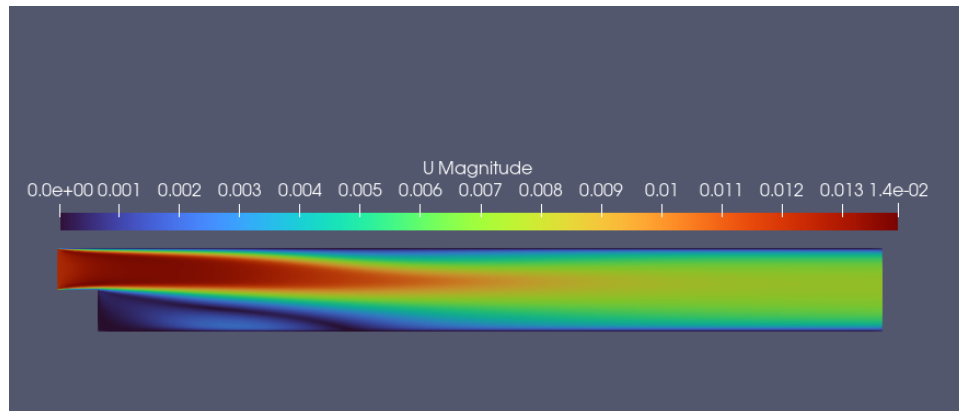


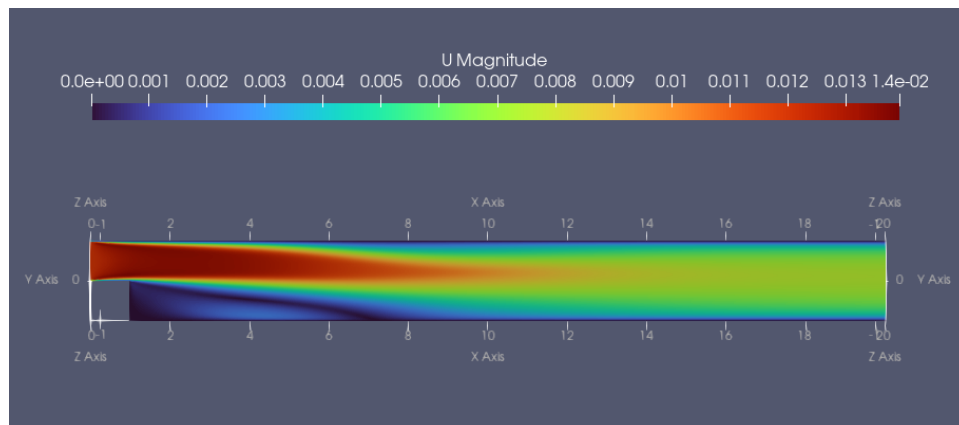
Fig.6 Velocity contour (t = 4000s) with Grids enabled



Residual vs Time



Velocity across the Step



Velocity across the Step (data grid enabled)