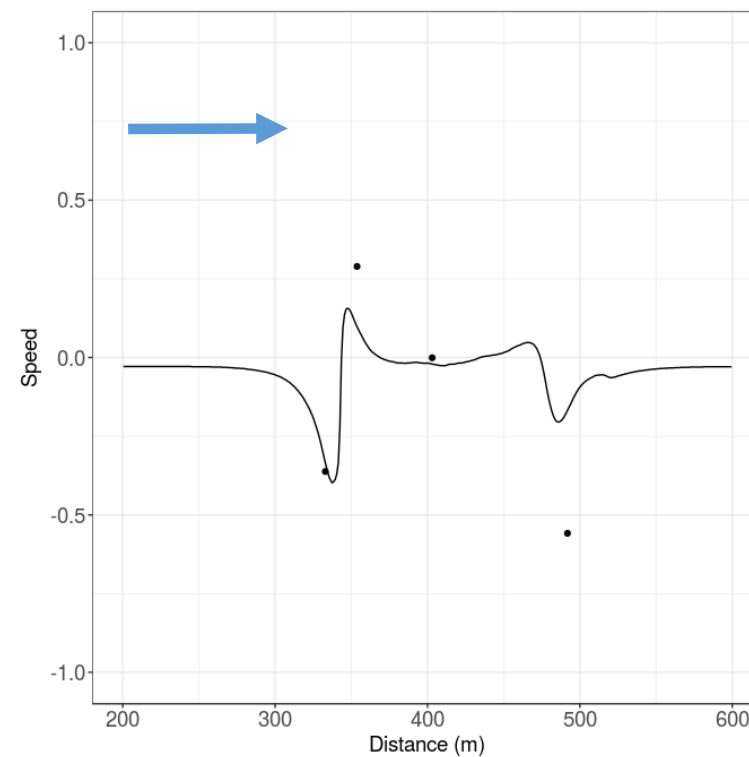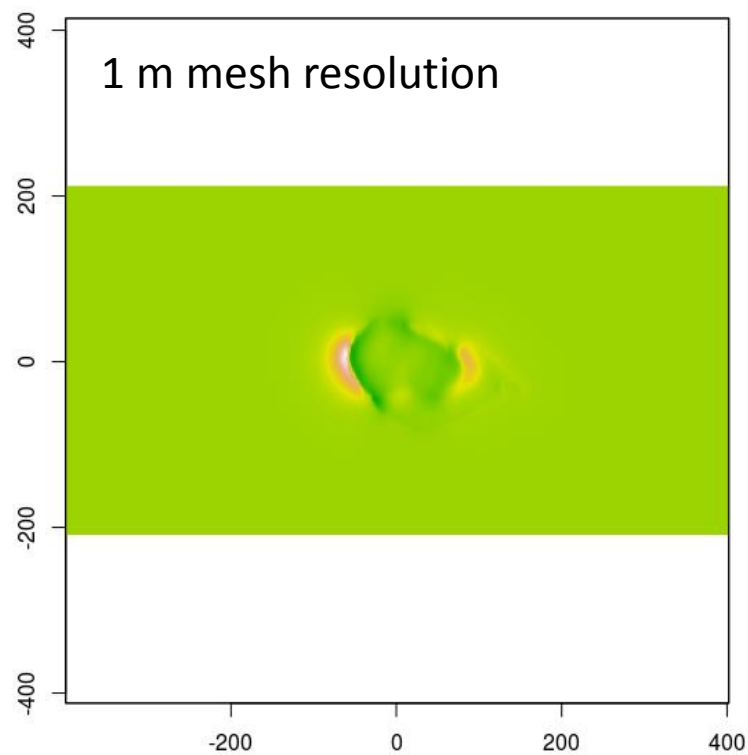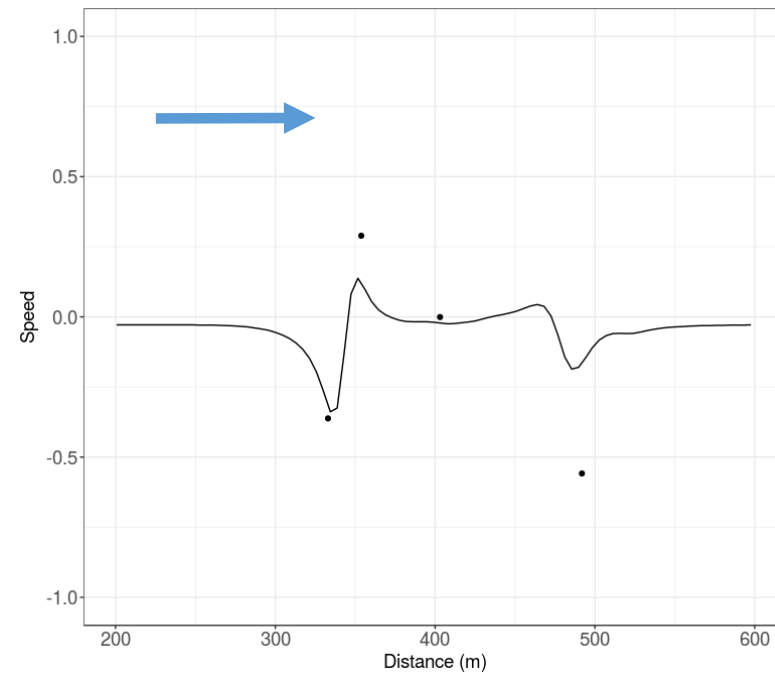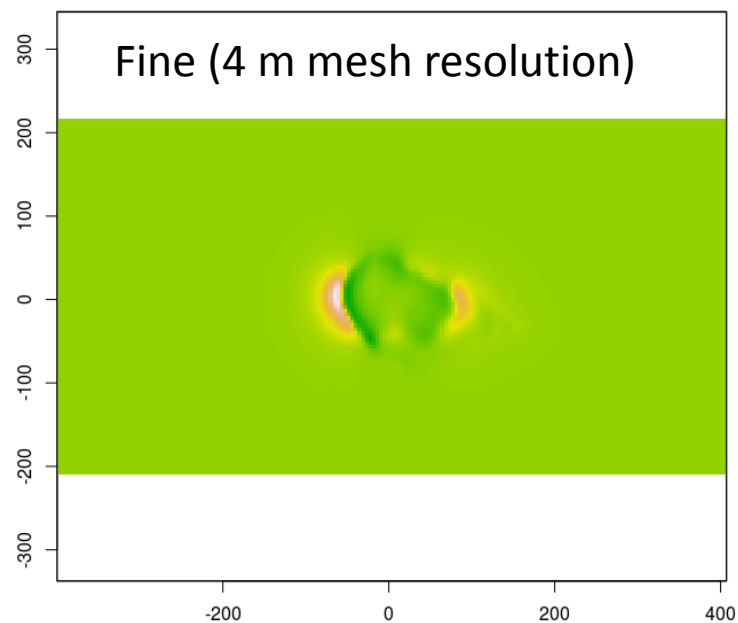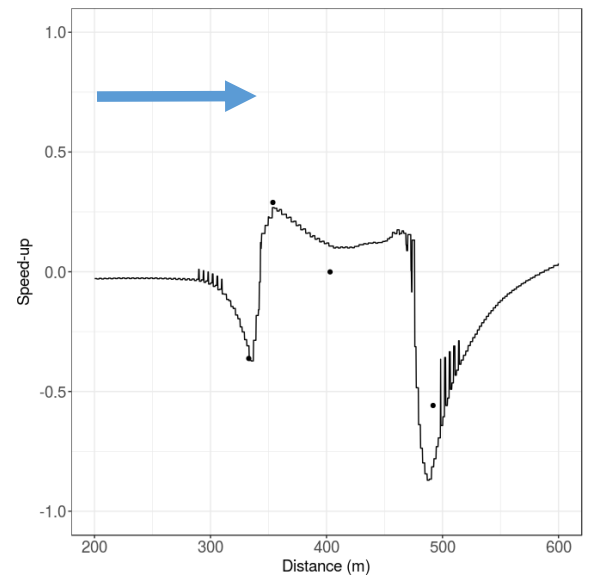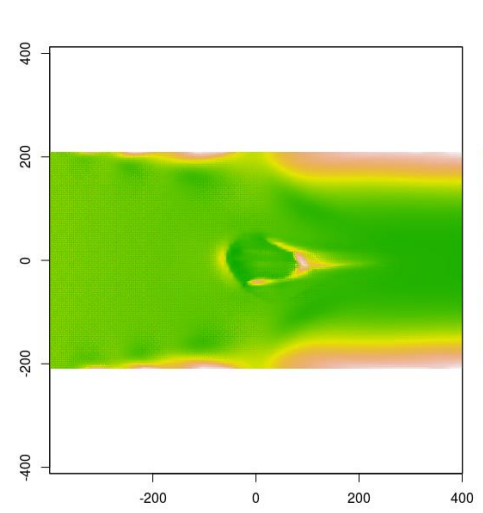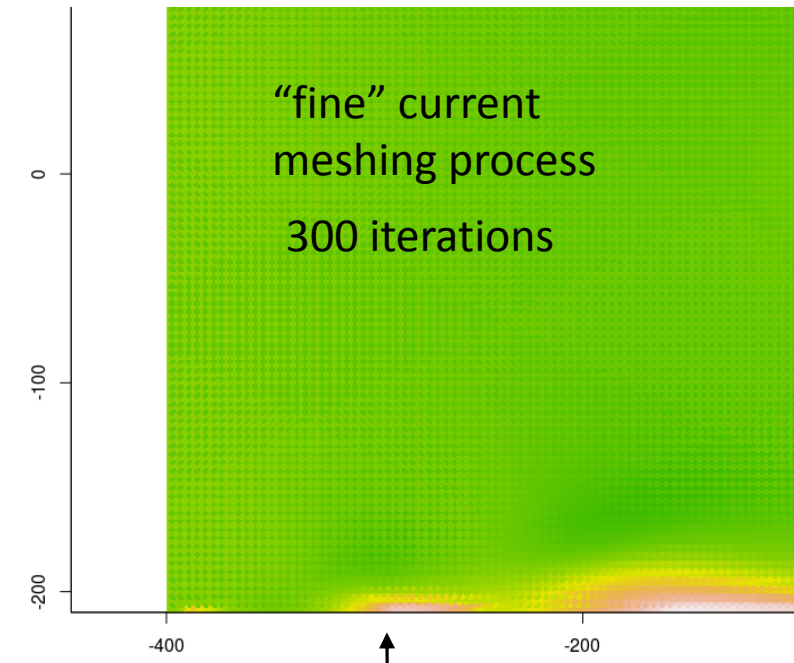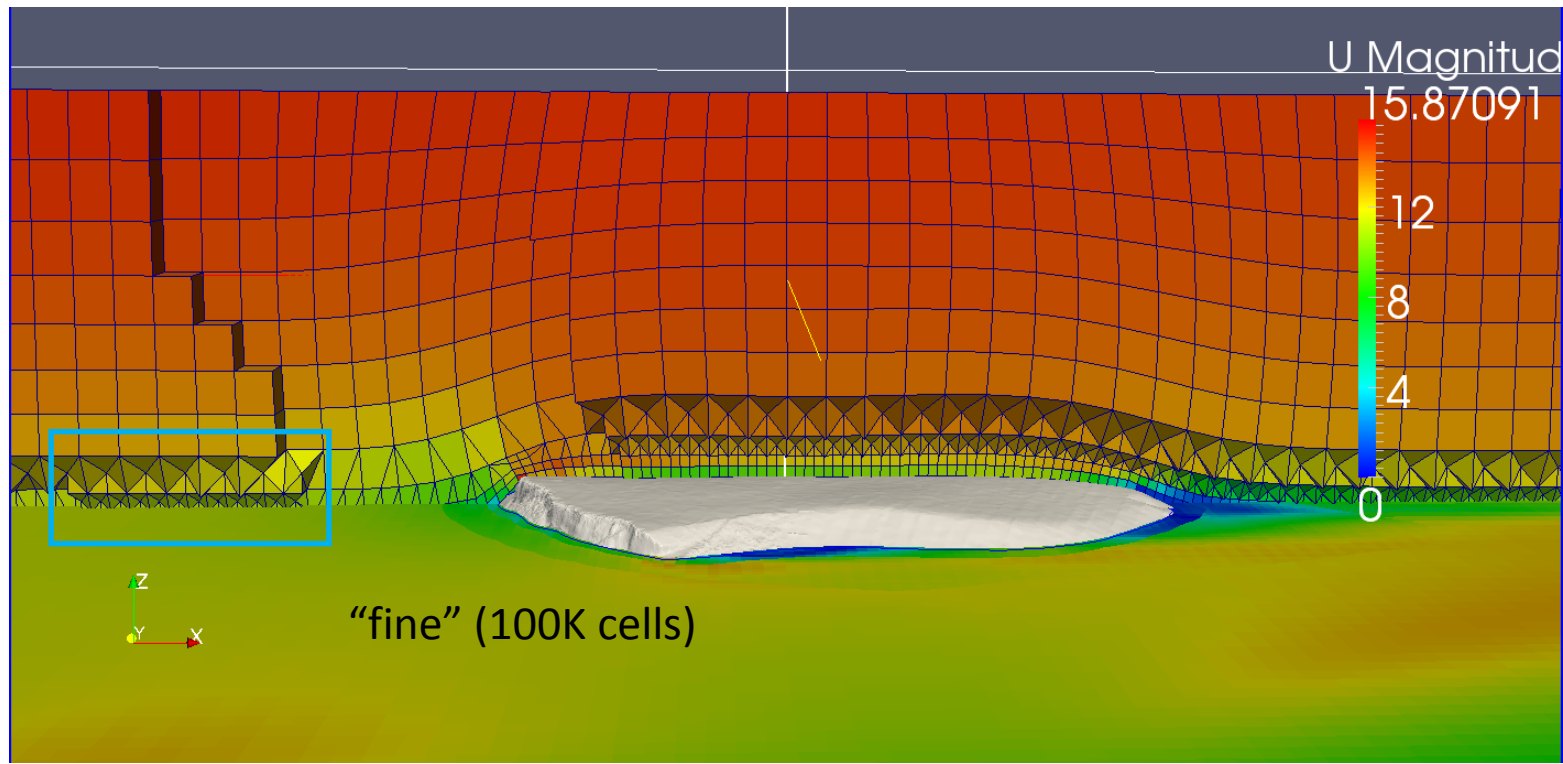Bolund Hill
12 m tall
Surrounded by water
Very steep west side
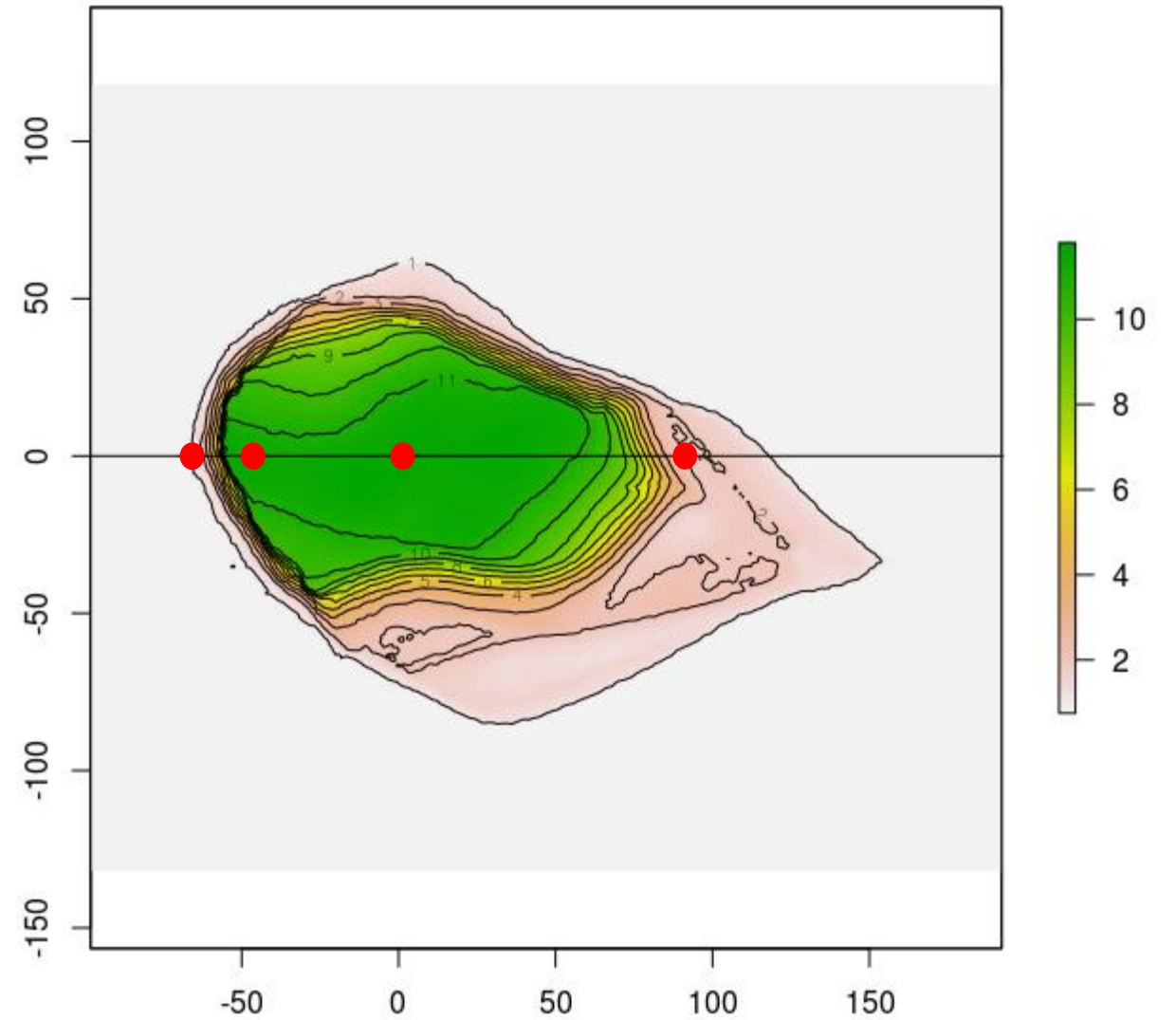
Mass Solver
Transect B
270, 10.9 m/s

# CFD settings

- "coarse" = 25k cells
- "medium" = 50k cells
- "fine" = 100k cells
- nInterations set to 300 unless NINJAFOAM_ITERATIONS is set

U Magnitud

15.87091

12

8

4

0

"fine" (100K cells)
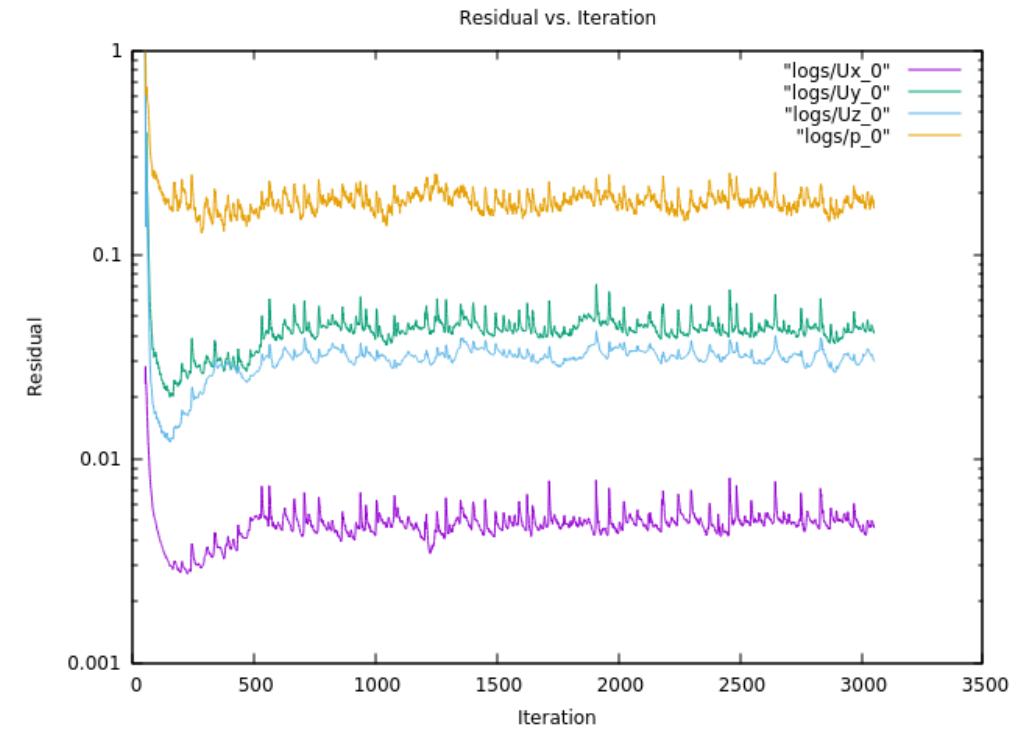
"fine" current
meshing process

300 iterations

Oscillations in velocity field due
to sampling through wedges
(between coarse and fine
regions) in mesh

*pancake-like cells near the surface can
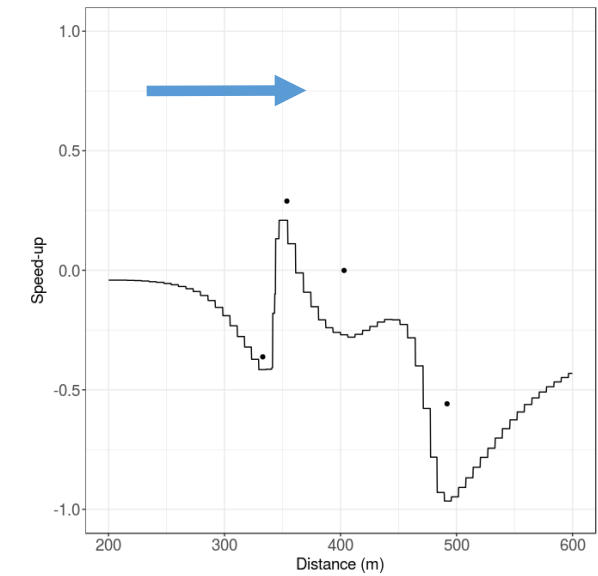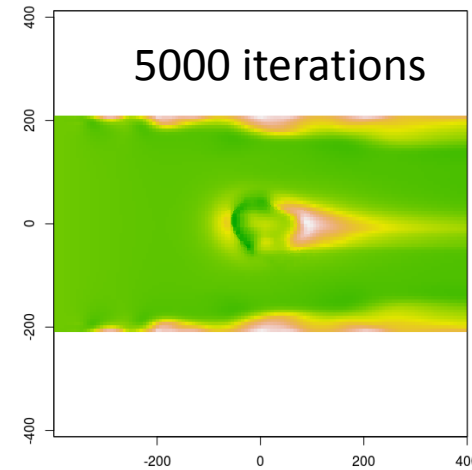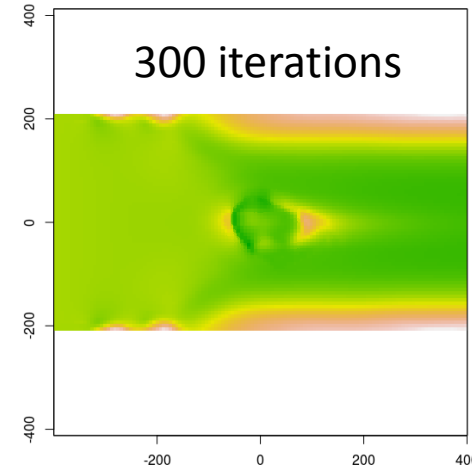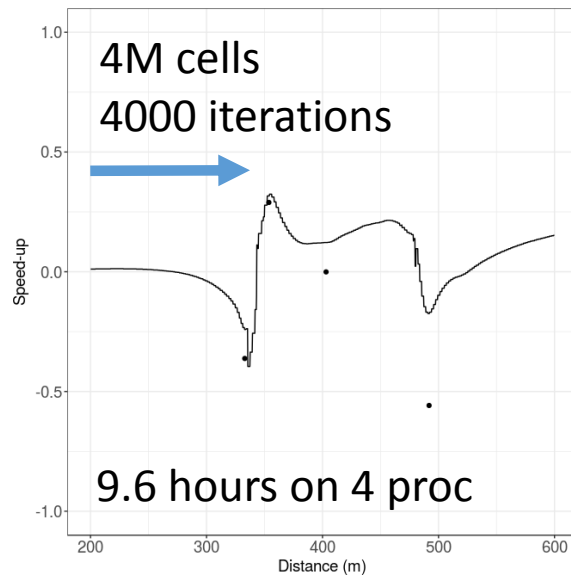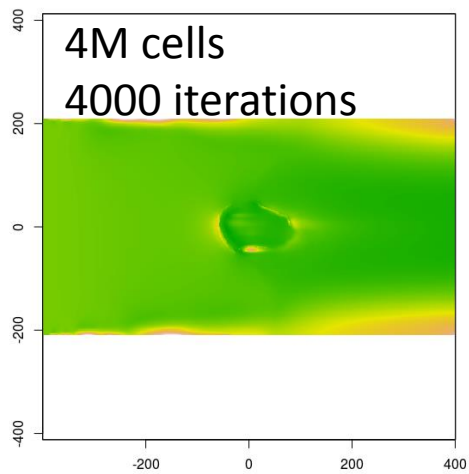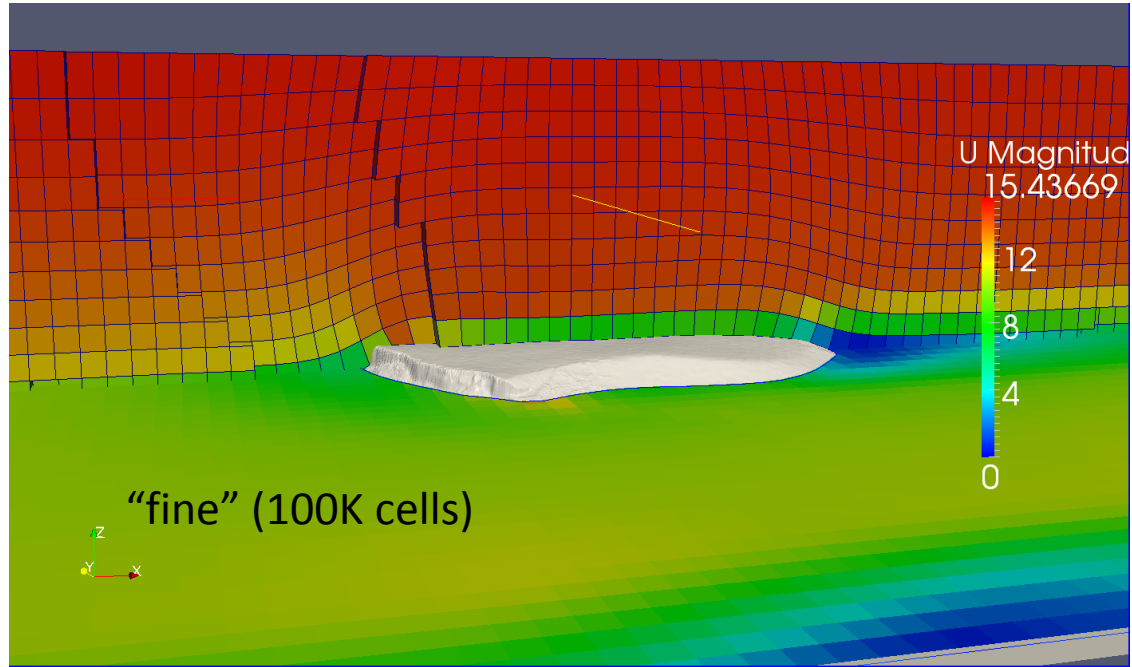cause the solver to diverge, which is why
we use this method of refinement
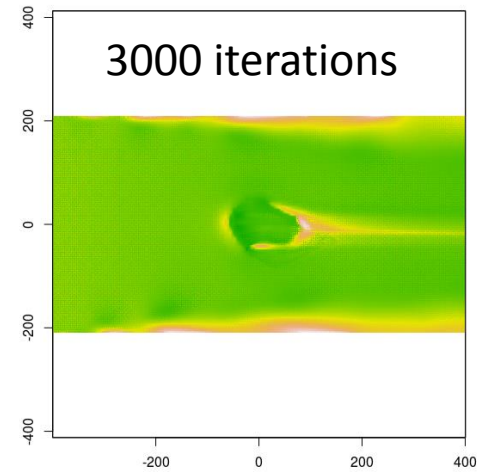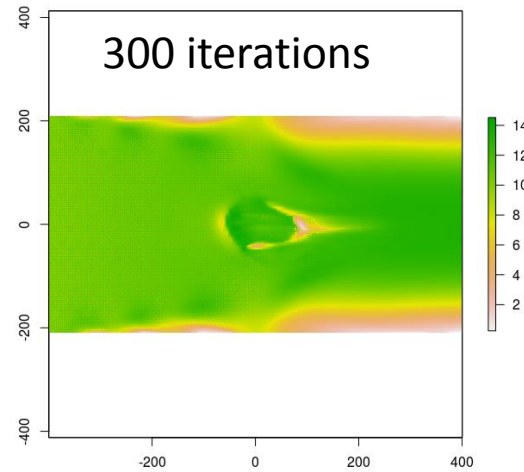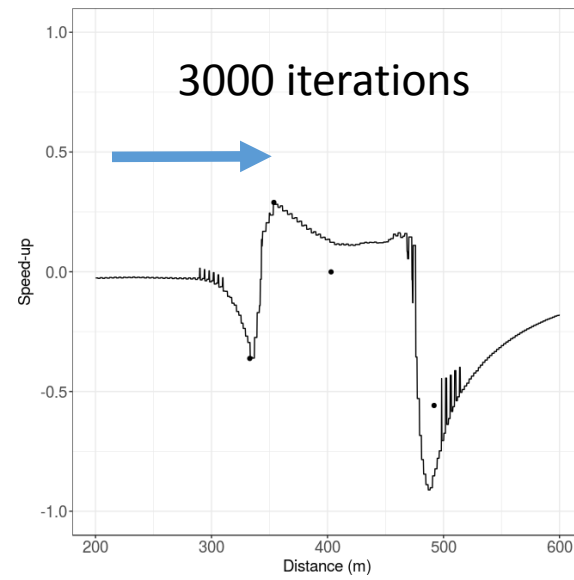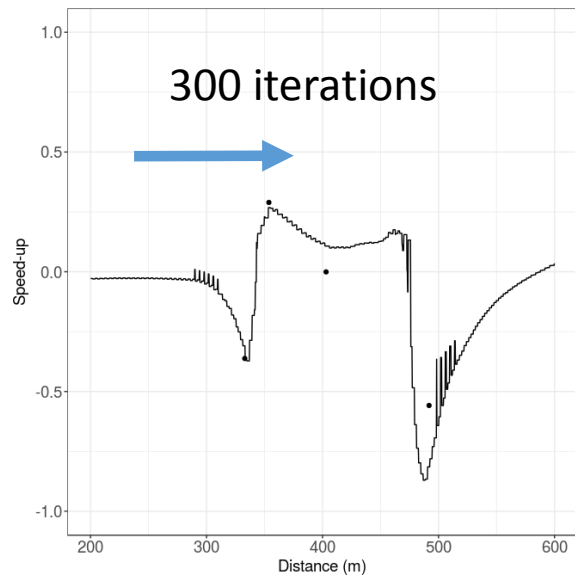
*Not much change between 300 and 3000 iterations for "fine"

**No surface refinement**



U Magnitud
15.43669

12

8

4

0

"fine" (100K cells)

300 iterations

5000 iterations

4M cells
4000 iterations

4M cells
4000 iterations

9.6 hours on 4 proc
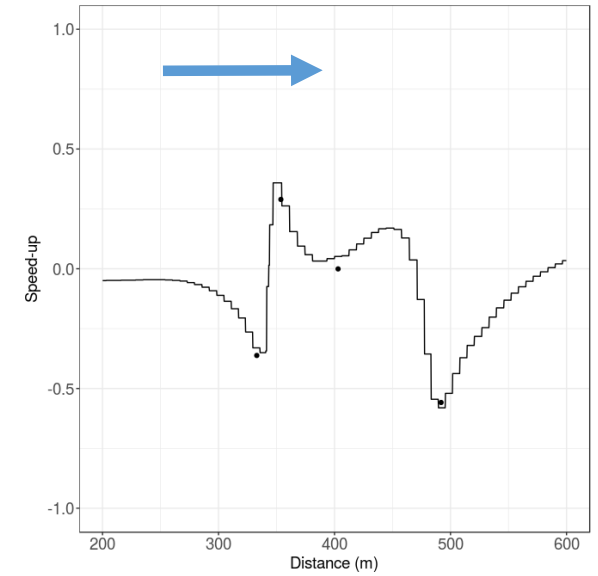
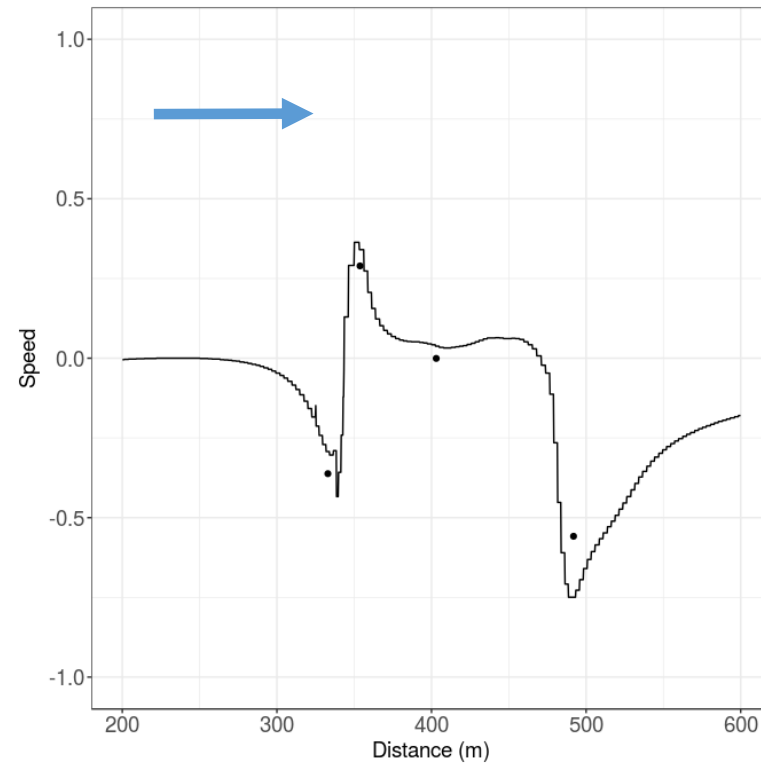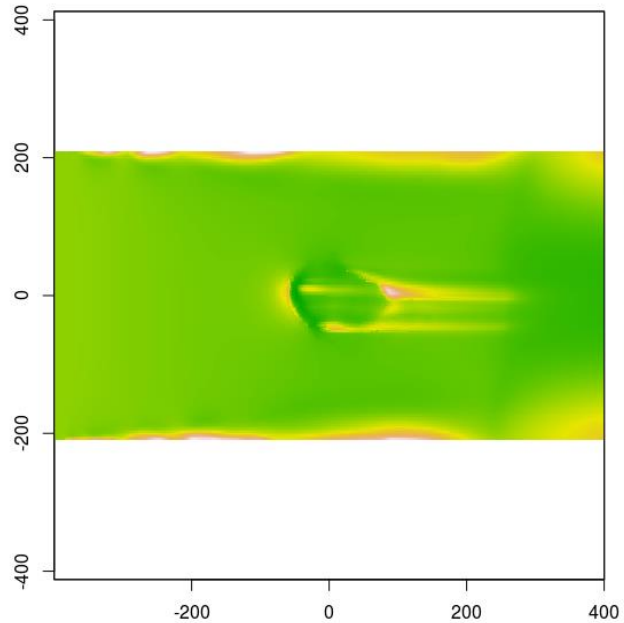*results with refinement look better, even when sampling is done in the refinement region
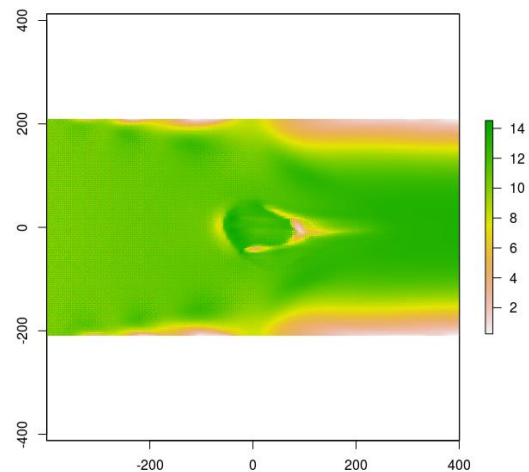
CFD Solver
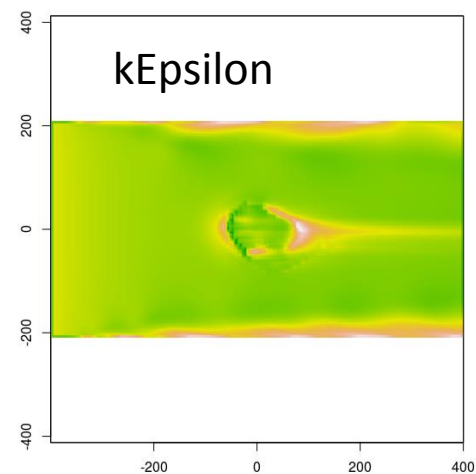Transect B
270, 10.9 m/s
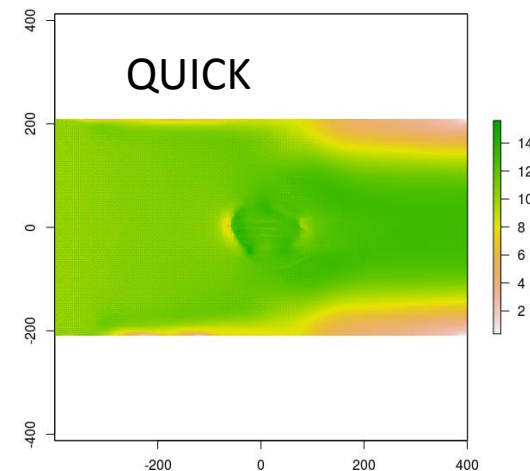4M cells, 3000 iterations
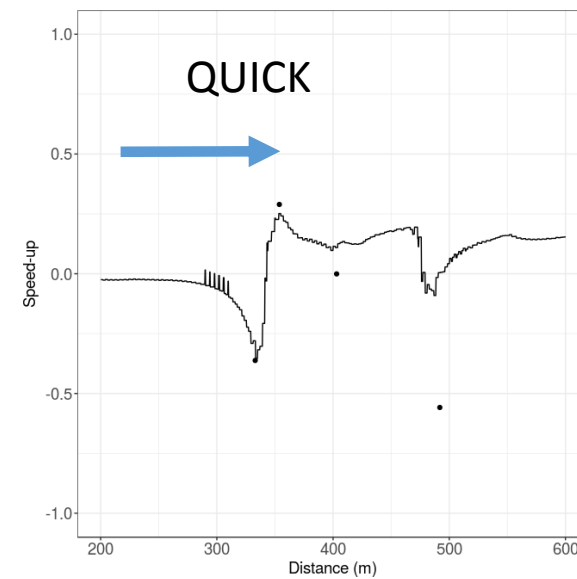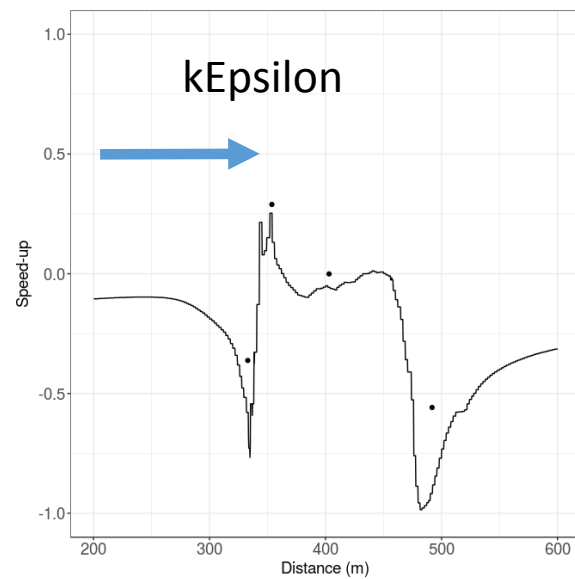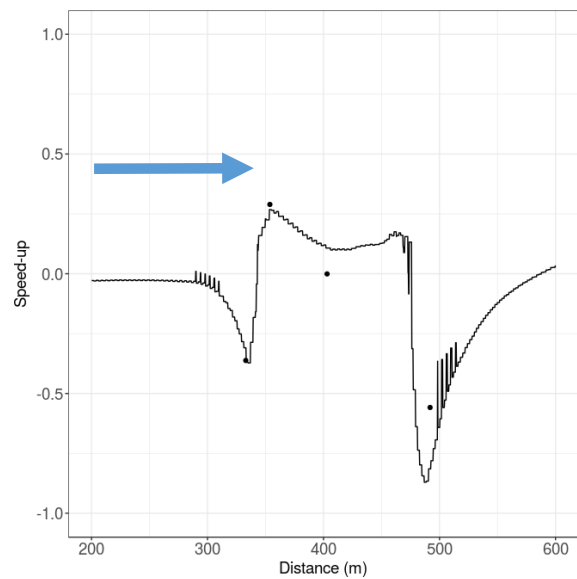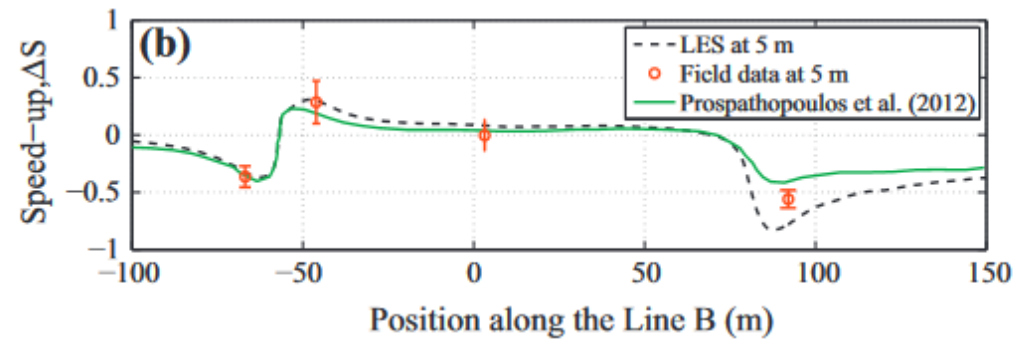myKE, linear upwind (current settings)

Current settings
(fine)

Changed
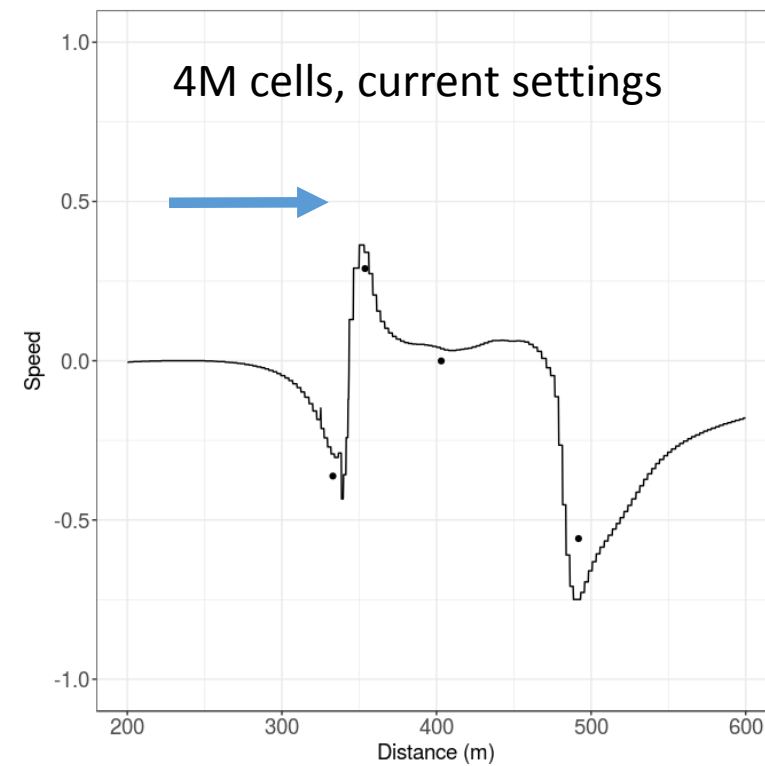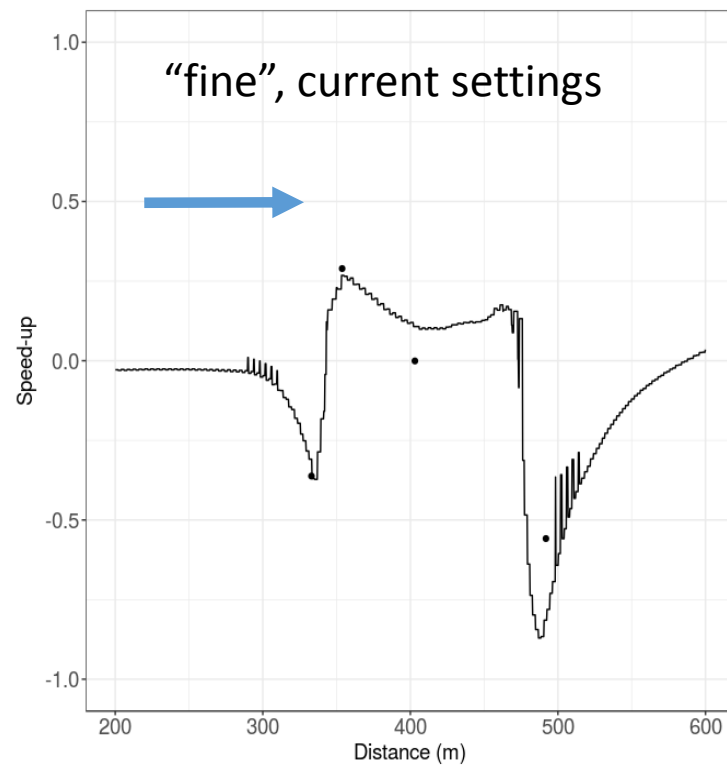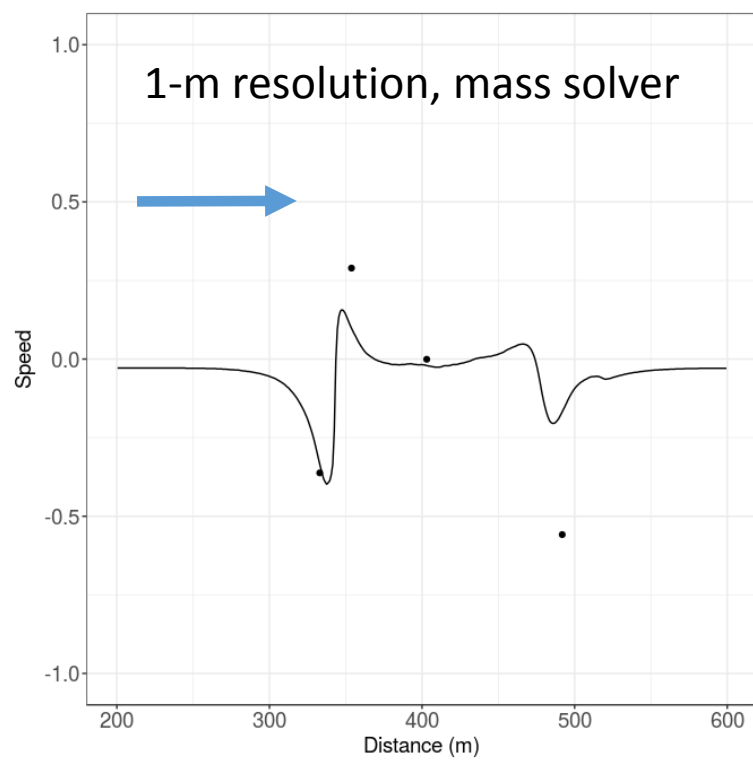turbulence model

Changed discretization
of advection term

kEpsilon

QUICK

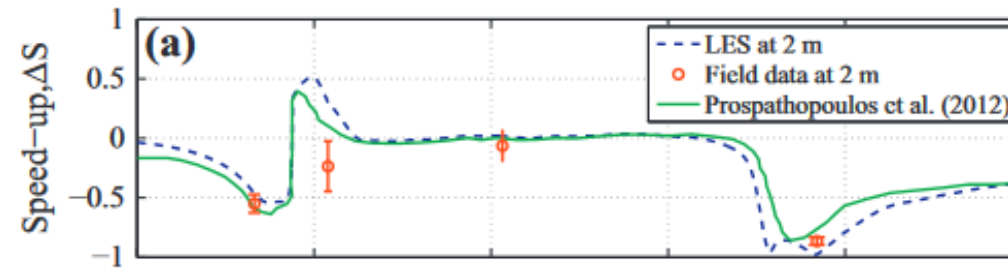*current settings seem best for this case

kEpsilon

QUICK

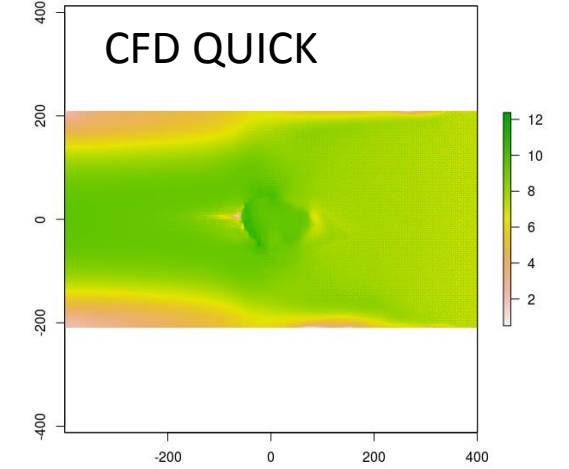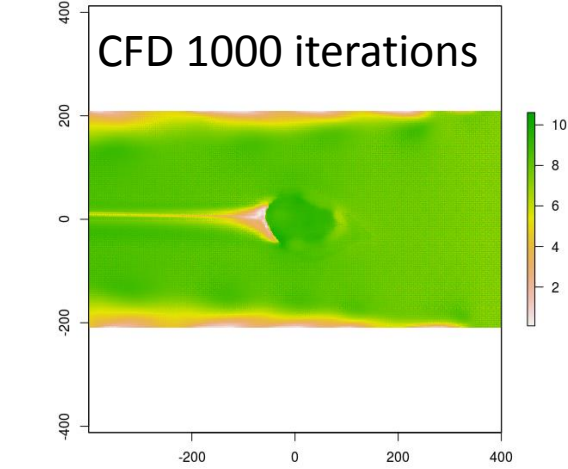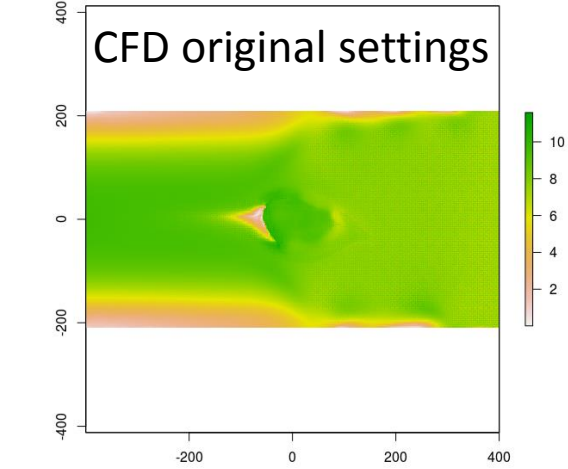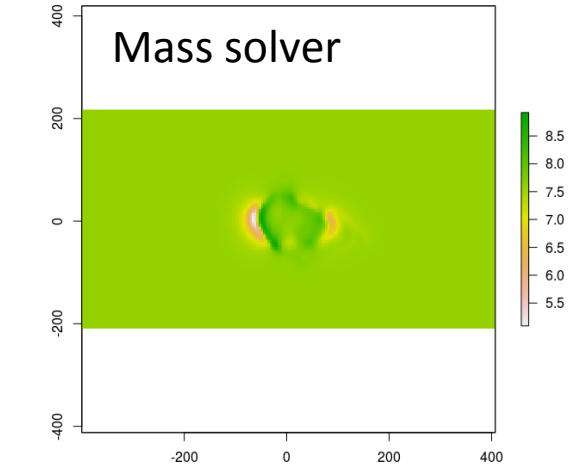5-m transect

Current settings, "fine", 2-m transect
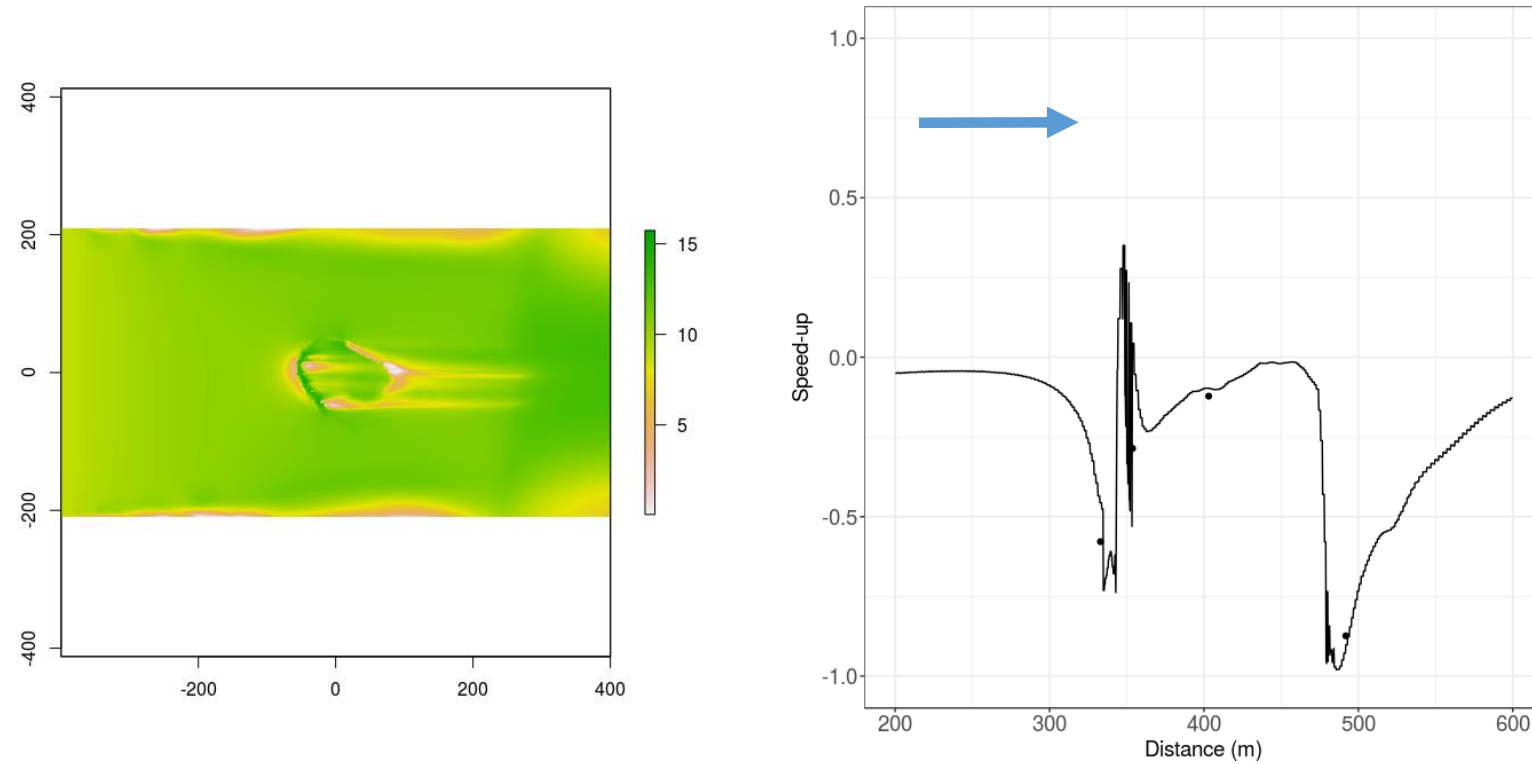
Transect B
90, 7.6 m/s
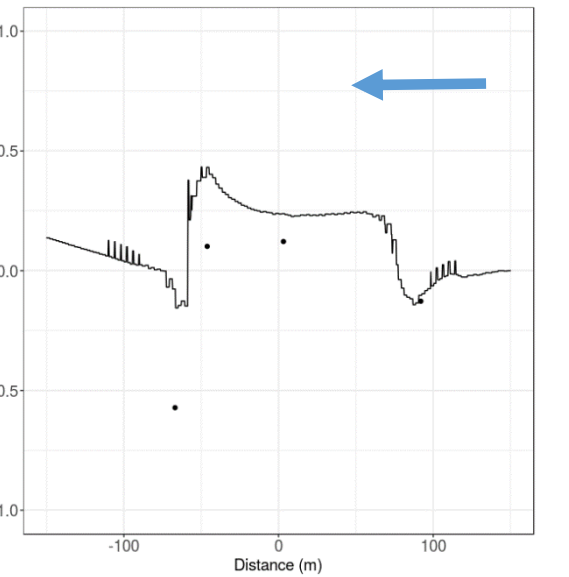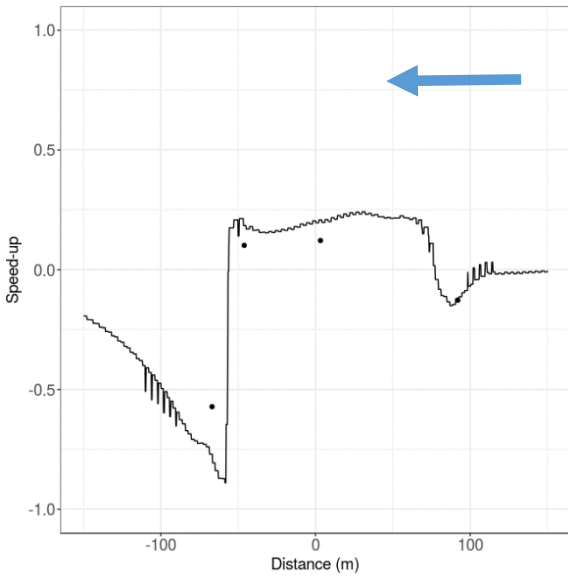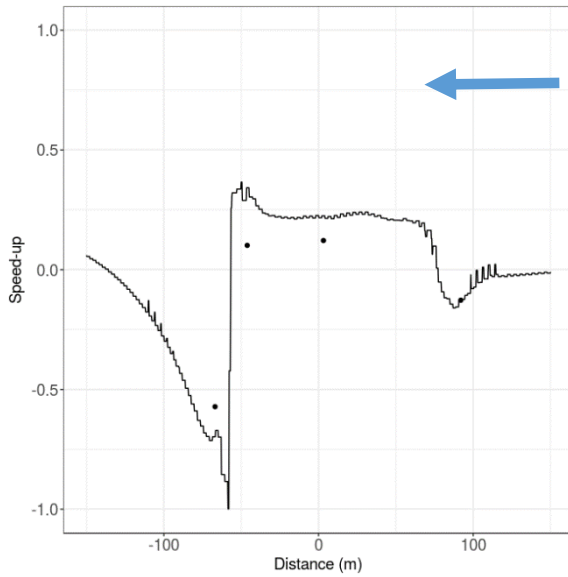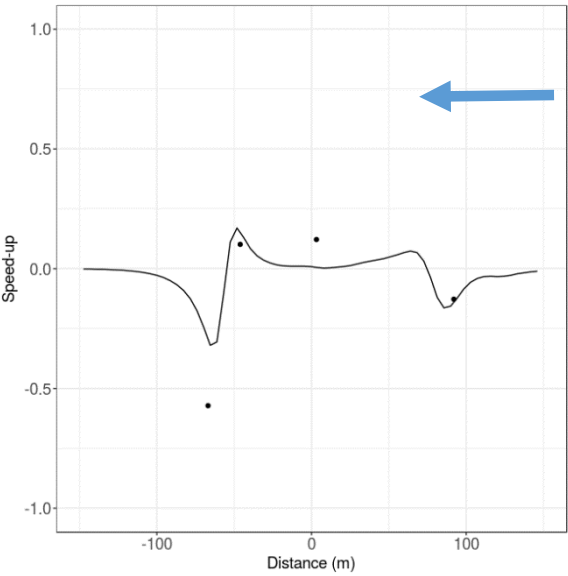
Transect B
90, 7.6 m/s

1M cells, 2000 iterations,
20-m top height