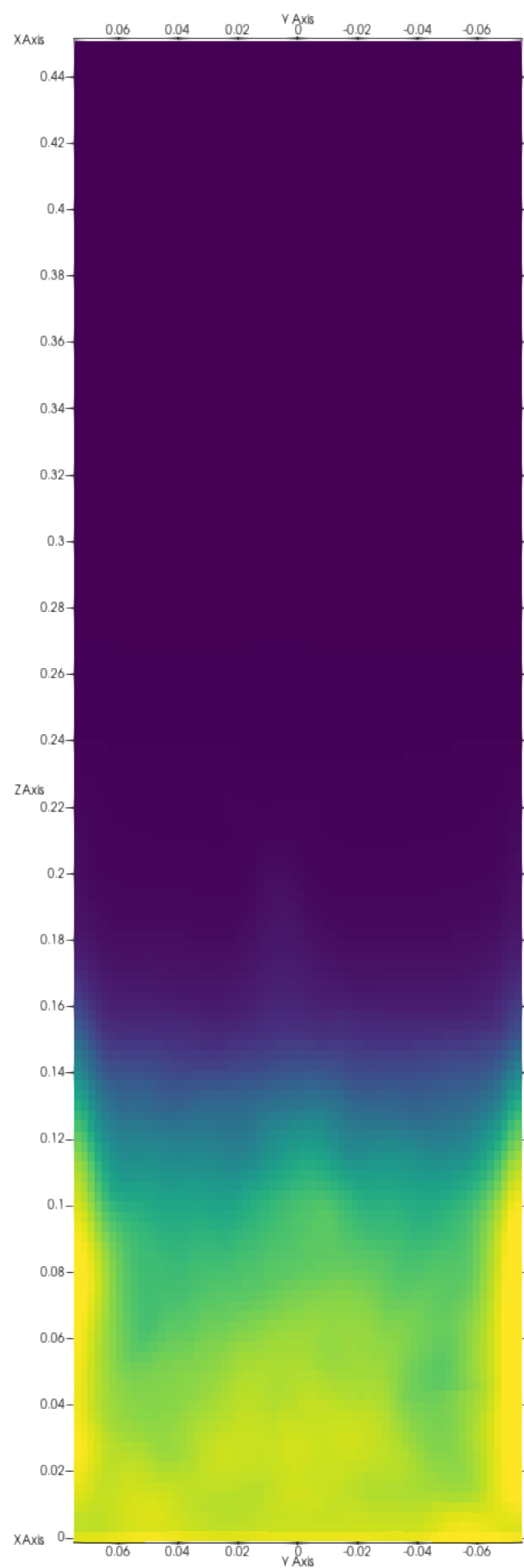
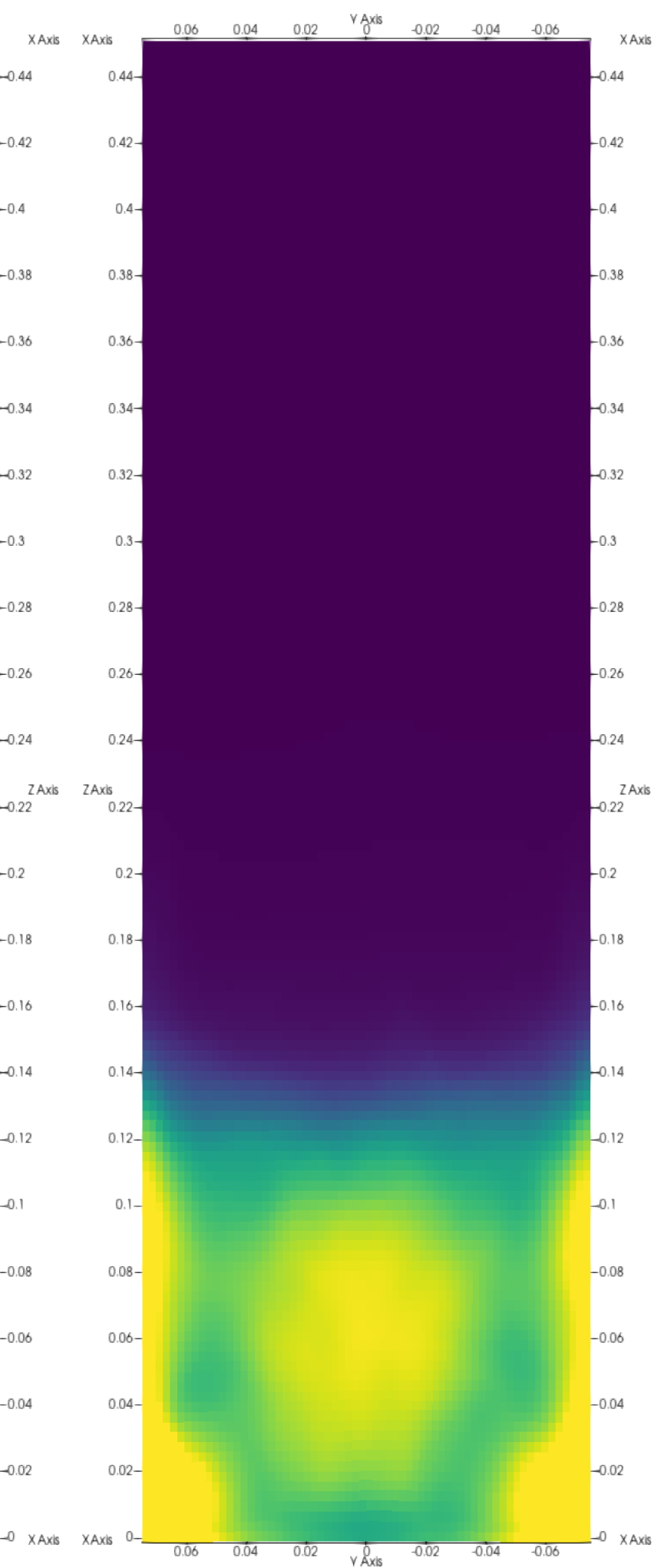


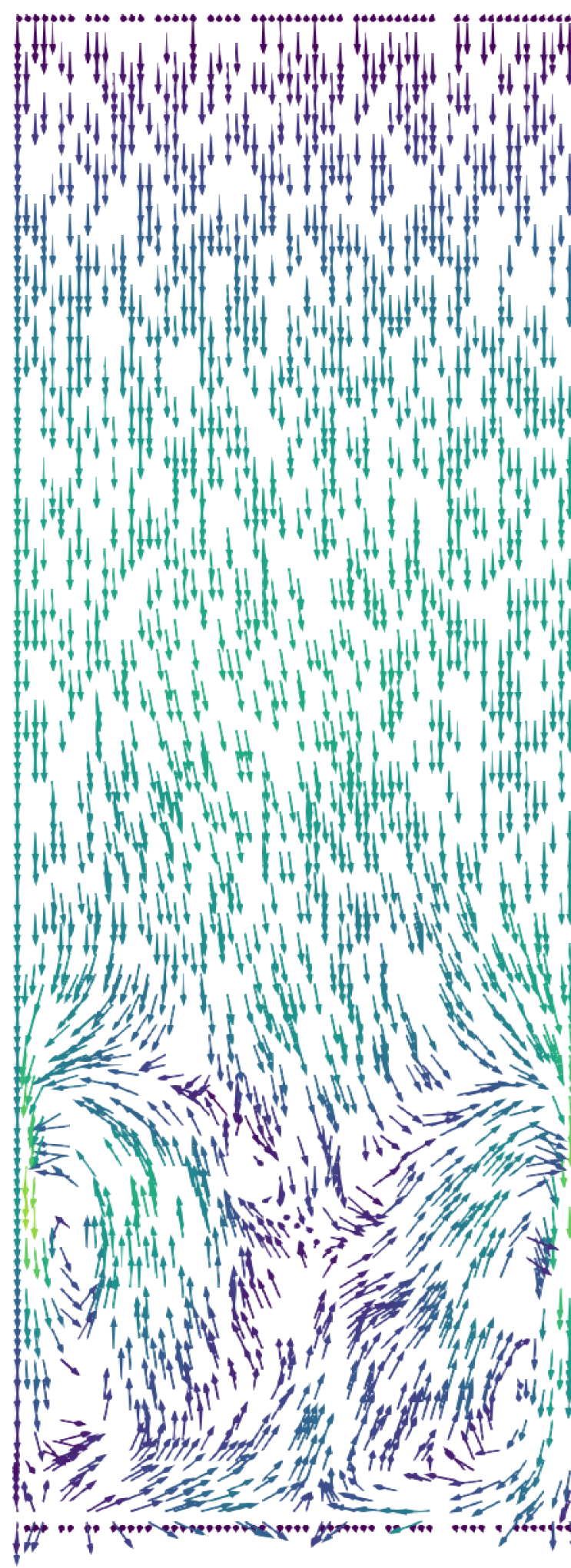
(a)



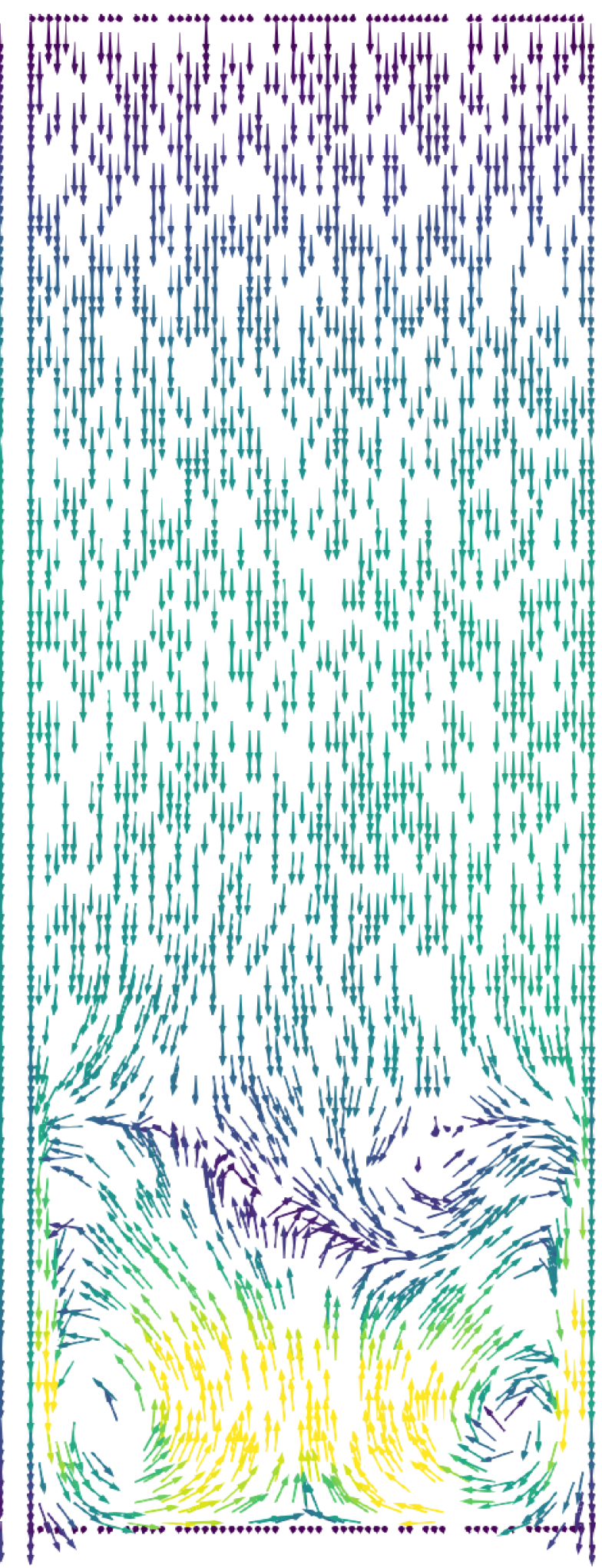
(b)



(c)



(d)



0.00 0.10 0.20 0.30 0.40

Particle volume fraction α_p (-)

0.00 0.05 0.10 0.15 0.20 0.25 0.30

Particle velocity U_p (m/s)