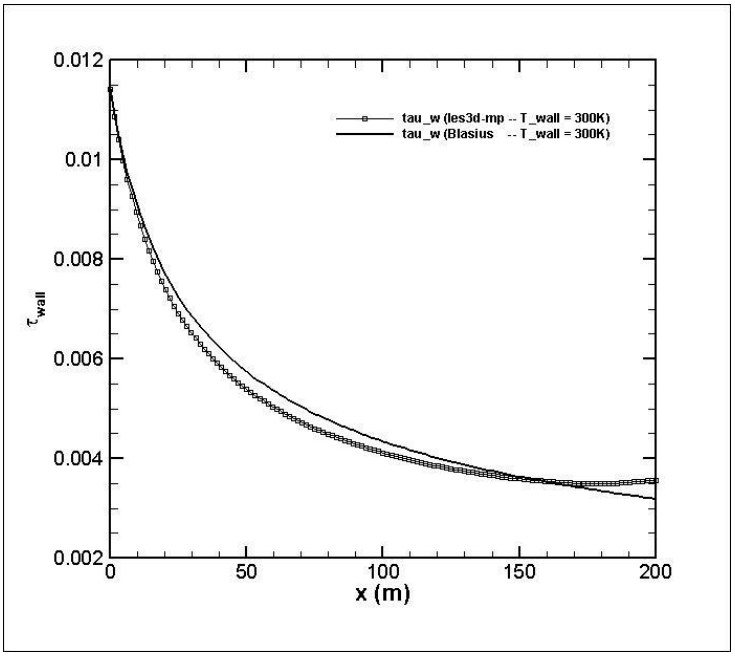
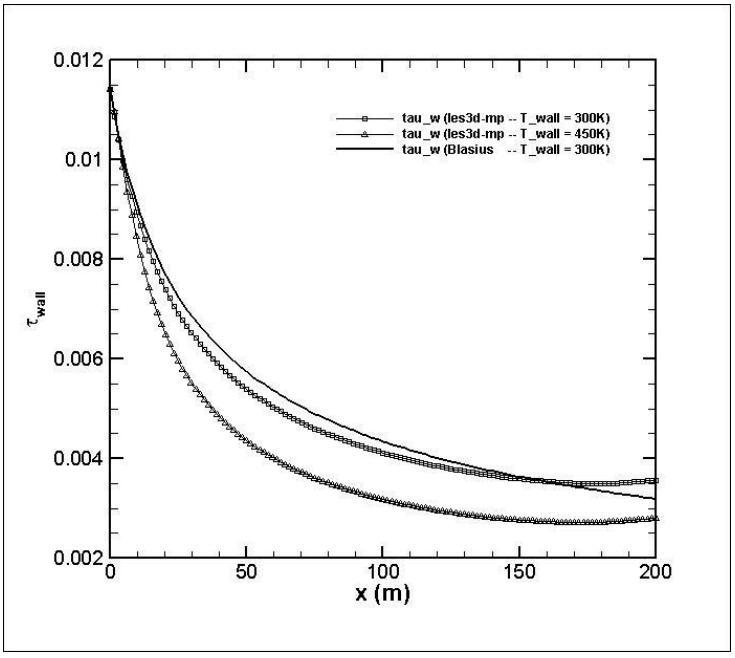
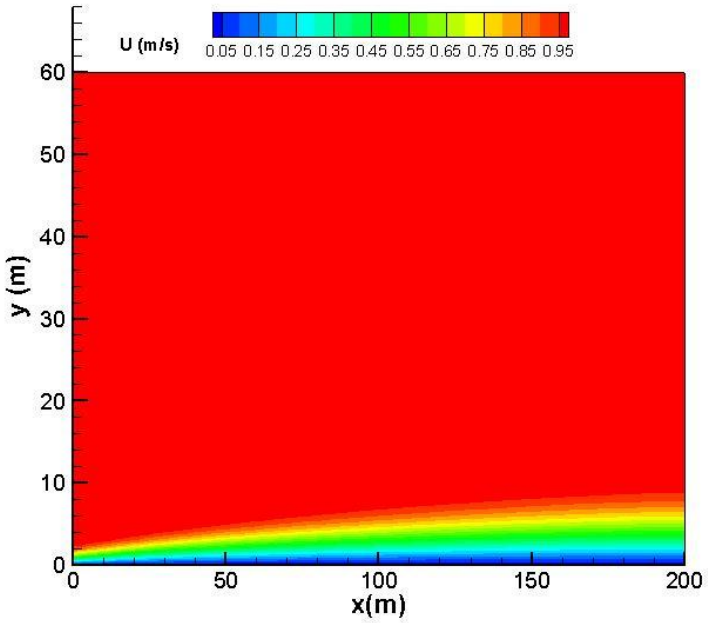
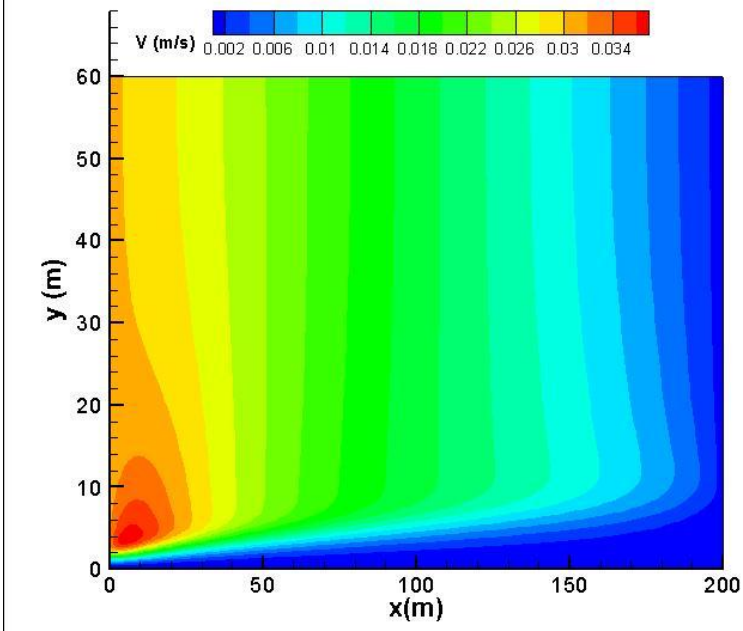
$\boldsymbol{\nu_{inf}(m/s^2)}$	$\boldsymbol{Pr = \frac{c_p \mu}{k}}$	$\boldsymbol{\nu_{wall}\ (m/s^2)}$	$\boldsymbol{k_{inf}(m/s^2)}$	$\boldsymbol{k_{wall}\ (m/s^2)}$
0.02	0.71	$\nu_{inf}\left({}^{T_w}/_{T_a}\right)^{1.6} = 0.0383$	$\frac{c_p \nu_{inf} \rho_{inf}}{Pr} = 0.0539$	$\frac{c_p \nu_{wall} \rho_{wall}}{Pr} = 0.05685$
$\boldsymbol{L_0 - L_z}$	$\boldsymbol{Re}$	$\boldsymbol{\delta^*(z = L_0)\ (m)}$	$\boldsymbol{\delta(z = L_0)\ (m)}$	$T_{wall}\ (K)$
$16.84\ -200\ m$		1	3	450K
$\boldsymbol{U_{ref}\left(\frac{m}{s}\right)}$	$\boldsymbol{\delta^*\ (m)}$	$\boldsymbol{\nu_{ref}\left(\frac{m}{s^2}\right)}$	$\boldsymbol{Re_{ref} = \frac{u_{ref} L_{ref}}{\nu_{ref}}}$	
1.0	1.0	0.02	50	

$\boldsymbol{(L_x L_y L_z)^*}$	$\boldsymbol{(n_x n_y n_z)}$	***grid stretching***	
(200,60,4)	(128,96,4)	- Wall –normal hyperbolic (α= 2.75) - Uniform grid in x, z	
Inflow boundary	***outflow boundary***	***freestream boundary***	
$u = u_{blasius}$, $v = v_{blasius}$, $w = 0$ $T = T_{wall}$	*Orlansky* $\frac{\partial u_i}{\partial t} + U_c \frac{\partial u_i}{\partial x_i} = 0$ $\frac{\partial h}{\partial t} + U_c \frac{\partial h}{\partial x_i} = 0$ $U_c = \frac{1}{L_y} \int u_{outflow} dy$	$\frac{du_i}{dy} = 0$ $\frac{dh}{dy} = 0$	*(Option)* $\frac{du}{dy} = 0, \frac{dw}{dy} = 0$ $v = v_{blasius}$ $\frac{dh}{dy} = 0$
wall boundary	***Scalar Discretization Option***	***Periodicity***	
$u_{i_{wall}} = No\ slip$ $T_{wall} = 450K$	QUICK	Spanwise	

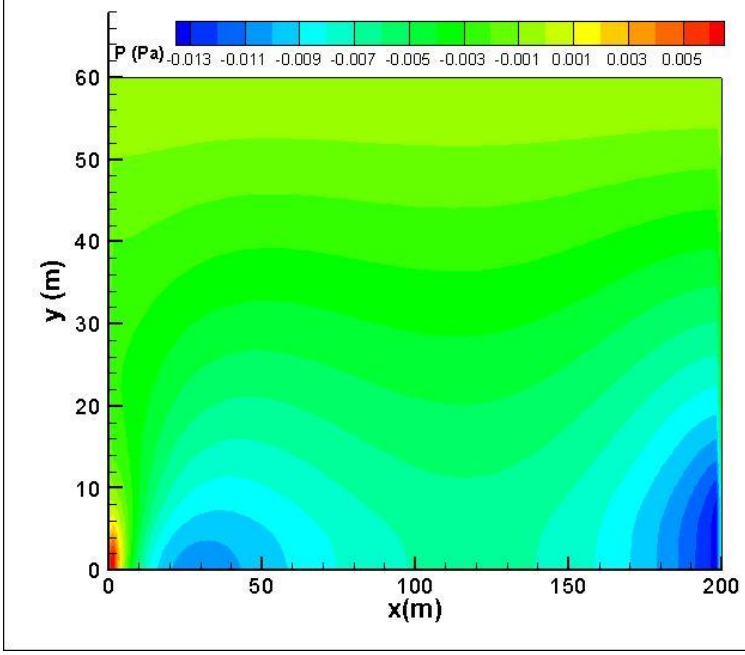

0.012
0.01
0.008
0.006
0.004
0.002
τ_{wall}
0
50
100
150
200
x (m)
tau_w (les3d-mp -- T_wall = 300K)
tau_w (Blasius -- T_wall = 300K)

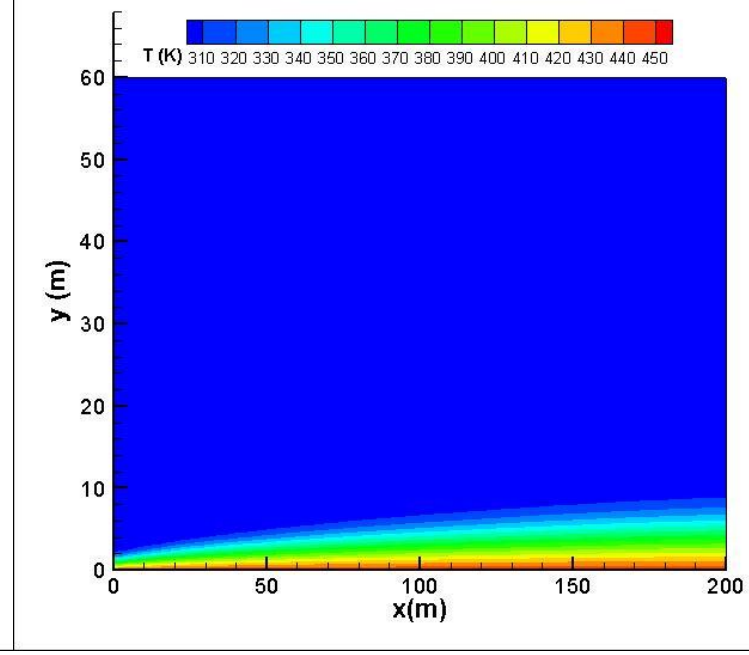

0.012
0.01
0.008
0.006
0.004
0.002
τ_{wall}
0
50
100
150
200
x (m)
tau_w (les3d-mp -- T_wall = 300K)
tau_w (les3d-mp -- T_wall = 450K)
tau_w (Blasius -- T_wall = 300K)


U (m/s)
0.05 0.15 0.25 0.35 0.45 0.55 0.65 0.75 0.85 0.95
y (m)
x(m)
0
10
20
30
40
50
60
0
50
100
150
200


V (m/s)
0.002 0.006 0.01 0.014 0.018 0.022 0.026 0.03 0.034
y (m)
x(m)
0
10
20
30
40
50
60
0
50
100
150
200

ddd


P (Pa)
-0.013 -0.011 -0.009 -0.007 -0.005 -0.003 -0.001 0.001 0.003 0.005
y (m)
x(m)
0
10
20
30
40
50
60
0
50
100
150
200


T (K)
310 320 330 340 350 360 370 380 390 400 410 420 430 440 450
y (m)
x(m)
0
10
20
30
40
50
60
0
50
100
150
200