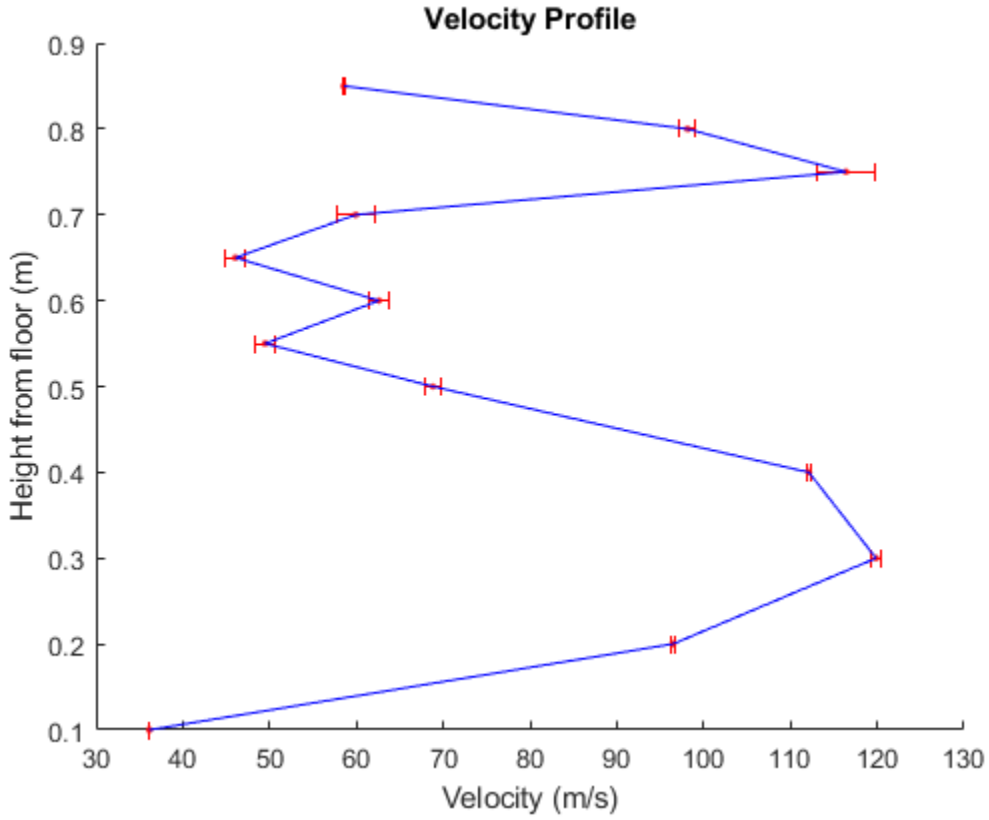
```
z =
 [ .1 ; .2 ; .3 ; .4 ; .5 ; .55 ; .6 ; .65 ; .7 ; .75 ; .8 ; .85 ] ; %
 Vertical location m
P = [ 100.5 ; 95.6 ; 92.5 ; 93.6 ; 98.4 ; 99.8 ; 98.9 ; 100 ; 99.1 ;
 93.0 ; 95.4 ; 99.2 ] ; % Static Pressure kPa
errP = [ .2 ; .2 ; .4 ; .2 ; 1.3 ; 2.2 ; 1.9 ; 2.4 ; 3.7 ;
 2.7 ; .9 ; .3 ] ; % Error kPa
Pstag = 101.3 ; % Stagnation Pressure kPa
rho = 1.225 ; % density in kg/m^3

v = sqrt( ( 2*((Pstag-P)*1000) )/ rho ) ; % Velocity m/s
errv = (errP./P).*v ; % Error for velocity

hold on
errorbar( v , z , errv , 'horizontal' , '.r' ) % Error bar and data
 plot
plot( v , z , '-b' ) % show lines to aid in seeing trend
title( 'Velocity Profile' )
xlabel( 'Velocity (m/s)' )
ylabel( 'Height from floor (m)' )
hold off

disp( 'I used Bernoulli''s Equation to find velocity which uses the
 assumptions ' )
disp( 'that the flow is steady, there are no viscous effects, no pumps
 or turbines' )
disp( 'flow is incompressible, there is no heat transfer, and there
 are no vortices' )
disp( 'The assumption that there are no vortices and that the flow is
 steady seem ' )
disp( 'dubious because there seems to be an object in the test section
 which would ' )
disp( 'likely cause vortices and instability.' )
disp( ' ' )
disp( 'This test could be showing an object in the test section near
 the top. This' )
disp( 'would explain why the air at the bottom section is fast for
 longer than the' )
disp( 'air at the top. The data would be clearer if there were more
 pressure')
disp( 'measurements in the area where the air slows down. As it is it
 is hard to' )
disp( 'tell what is happening around the increase in speed at .6 m.' )

I used Bernoulli's Equation to find velocity which uses the
 assumptions
that the flow is steady, there are no viscous effects, no pumps or
 turbines
flow is incompressible, there is no heat transfer, and there are no
 vortices
The assumption that there are no vortices and that the flow is steady
 seem
```

*dubious because there seems to be an object in the test section which would
likely cause vortices and instability.*

*This test could be showing an object in the test section near the top. This
would explain why the air at the bottom section is fast for longer than the
air at the top. The data would be clearer if there were more pressure
measurements in the area where the air slows down. As it is it is hard to
tell what is happening around the increase in speed at .6 m.*



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