

- Raynold's number: help determine flow regime and separate weather effect from the drag effect.

$$\text{Re} = \frac{\rho v l}{\mu}$$

solve for v

$$v = \frac{\mu \text{Re}}{\rho} l$$

μ, ρ are ready from script. Need discussion on l . v wind speed

- Drag calculation

$$F_d = \frac{1}{2} C_d \rho A v^2$$

plugging in v as in Re,

$$F_d = \frac{1}{2} C_d \rho A \frac{(\mu \text{Re})^2}{\rho^2 l^2}$$

$$c_d = \frac{2F_d}{\rho A v^2}$$

- methodology:
 - coast down data : curve fitting F_d v.s. speed
 - find C_d from F_d
 - We can find Re from v and l , but how to find C_d from Re? i.e. how does Re help the actual drag calculation?
 - goal: find F_d given weather and speed.

discussion:

- Fit C_d from speed data
- find single curve: Re v.s. C_d