University of New Hampshire

**Magnus Effect on a Cylindrical Airfoil**

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# Abstract

Our goal was to evaluate the Magnus Effect around cylindrical airfoils. Using the University of New Hampshire wind tunnel we tested rotating cylinders at different mean wind velocity and rotation speeds. At a constant mean velocity in the wind tunnel

# Introduction

Our goal was to evaluate the effects of the Magnus Effect on a rotating cylinder at different rotational speeds and wind speeds. Using the Kutta-Joukowski lift equation –

(1)

Where is the lift force, is the density of the fluid, is the length of the cylinder, and is the vortex strength, given by –

(2)

Where is the radius, and is the angular velocity of the cylinder. From these two equations we theorized that at higher wind speeds, rotational speeds, and cylinder radius that we would generate more lift. The lift is dependent on the radius squared so it was expected the radius would have the largest effect of the lift force. [1]

# Methods

# Results and Discussion

# Summary and Conclusion

# References

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| [1] | "National Aeronautics and Space Administration," 5 May 2015. [Online]. Available: https://www.grc.nasa.gov/www/k-12/airplane/cyl.html. |

# Appendix