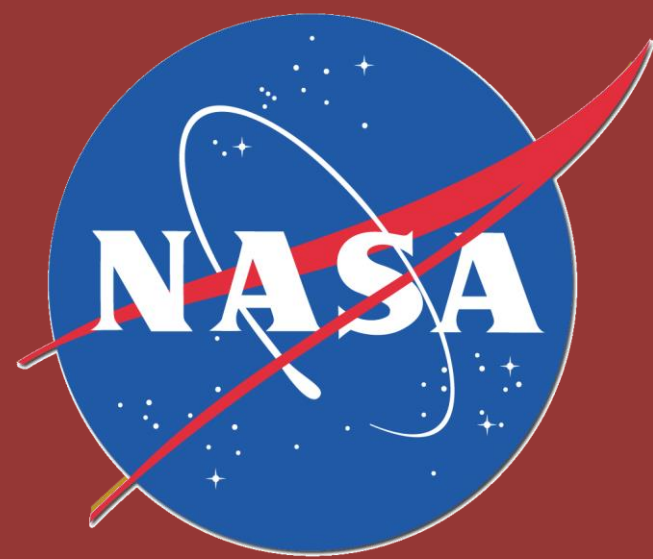




PRANDTL-3c Operations and Flight Testing

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Motivation

The PRANDTL-3c project as a whole seeks to evaluate via flight test the dynamics of Ludwig Prandtl's 1933 "Bell Shaped" lift spanload. This is the fourth iteration of the wing. The purpose of this specific project is to find the aerodynamic coefficients using Parameter Identification (PID).



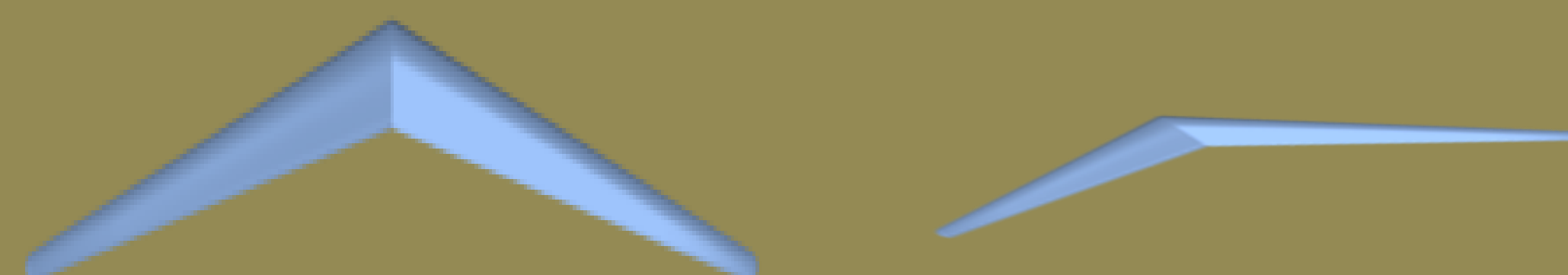
Sensor Information				
GRAPHIC	SENSOR	OUTPUT	GRAPHIC	INSTRUMENTATION
	α Vane	Angle of Attack		Servos
	β Vane	Sideslip Angle		Receiver
	Pitot Tube	Total, Static Pressure		Battery
	Pressure Ports	Dynamic Pressure		DAQ
	Potentiometers	Deflection Angle		Elevons

Flight Operations

The experiment is designed to obtain load distribution (spanload) experienced by the PRANDTL-3c. In order to do this, we will conduct flight mechanic maneuvers to estimate the aerodynamic parameters and PID data will be used to compare the PRANDTL-2 and PRANDTL-3c aircraft. The main difference between previous years is the implementation of the Alpha and Beta vanes in the pitot tube.

Aircraft Description

- Span: 25 ft.
- Dihedral: 3.5° along hinge line
- Sweep: 24° from the nose
- Airfoils: Custom shape and twist
- Materials: Carbon fiber skin, spar, ribs, and hood
- Control Surfaces: Elevon on each wing
- Flying Weights:
 - 45 lbs. (estimate)



Bungee Launch

- PRANDTL-3c is launched using the hi-start method



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