

[Keynote Talk]: Aerodynamic Effects of Ice and Its Influences on Flight Characteristics of Low Speed Unmanned Aerial Vehicles

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Abstract : This paper presents the theory and application of low speed flight for unmanned aerial vehicles when subjected to surface environmental conditions such as ice on the leading edge and upper surface. A model was developed and tested in a wind tunnel to see how theory compares with practice at various speed including take-off, landing and operational applications where head winds substantially alter parameters. Furthermore, a comparison is drawn with manned operations and how that this subject is currently under supported with accurate theory or knowledge for designers or operators to make informed decision or accommodate individual applications. The effects of ice formation for lift and drag are determined for a range of different angles of attacks.

Keywords : aerodynamics, low speed flight, unmanned vehicles, environmental influences

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