3D Ice Shapes comparison Approach

## **Current Recommended Practices**

- SAE ARP5903 features a section on "Ice Shapes Comparison Parameters"
- Current shortcomings:
  - Focused on 2D airfoils
  - Does not cover all icing simulations (e.g. it does not cover concentration factors or shadow analysis)
- With greater focus on 3D icing simulations in many different components, and comparisons between 3D icing wind tunnel testing and 3D numerically simulated ice shapes, there is a need to stablish innovative ways of comparing ice shapes and other icing parameters



## **Examples of 3D Icing Simulated Parameters**

**Currently Focused on Comparing Ice Shapes** 





Collection Efficiency and Water Catch on Complex Geometries



Concentration factors and shadow analysis comparisons

## **Possible Comparison Parameters**

- MCCS for swept wings
  - Assumes constant chord/profile with span
- Global Ice Shapes parameters: Volume, Mass...
- Aerodynamic impact of compared ice shapes....