

Keys to understand icing effects in developing aircrafts

- Icing: water droplets freeze on the surface of an aircraft flying in low-temperature clouds
 - ❑ Occurs where significant to aerodynamics (e.g., leading edges of main wings and tails)
 - ❑ Deteriorates flight performance drastically
 - ❑ Causes various aircraft accidents
- Requirements for a type certificate
 - ❑ Flight safety in an atmospheric icing condition
 - ❑ Performance durability in both normal and icing conditions (FAR revised in 2007)
- Accurate and efficient evaluation of icing effects
 - ❑ Conceptual design needs to optimize anti-icing performance
 - ❑ Flight tests need to reduce the risk and improve the safety



An example of icing at the leading edge of a main wing*

*Ref.: Bernstein, B., et. al., "The Embraer-170 and -190 Natural Icing Flight Campaigns: Keys to Success," AIAA 2006-264.