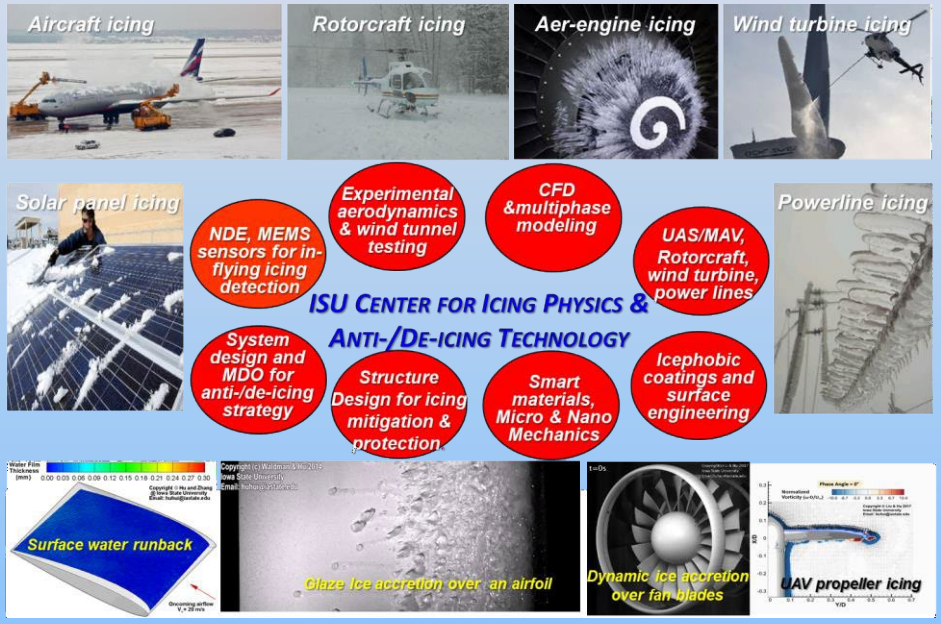
IOWA STATE UNIVERSITY

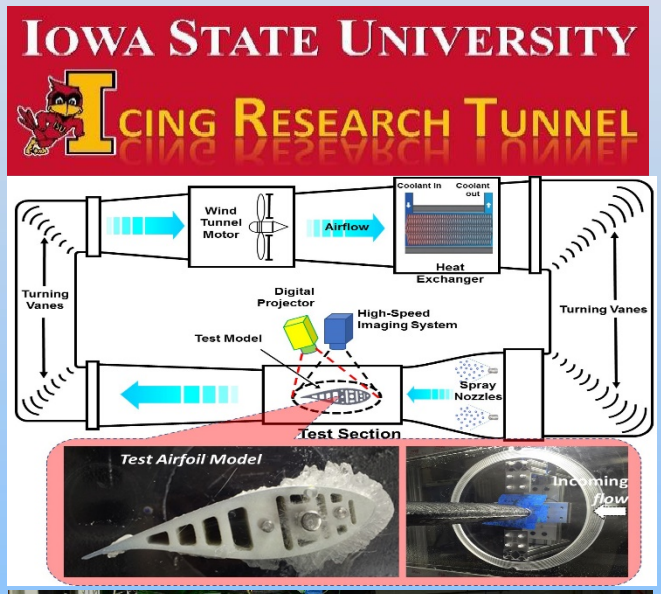
AIRCRAFT ICING PHYSICS & ANTI-/DE-ICING TECHNOLOGY LABORATORY

http://www.aere.iastate.edu/icing/

- Our recent research focuses on elucidating underlying physics of aircraft/aero-engine/UAS/wind turbine icing process and other relevant atmospheric icing phenomena (e.g., bridge cable icing, power cable icing and solar panel icing) via comprehensive theoretical, computational and experimental studies.

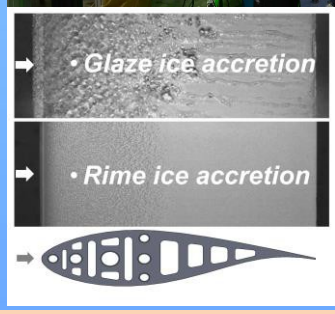
- By leveraging unique ISU Icing Research Tunnel (i.e., ISU-IRT), we are also developing novel, effective and robust anti-/de-icing systems to ensure safer and more efficient operation of aircraft/aero-engine/UAS/wind turbines and other engineering systems in cold weathers.





- ISU Icing Research Tunnel (i.e., ISU-IRT) is a newly refurbished, research-grade, multi-functional icing tunnel. It can duplicate/simulate atmospheric icing phenomena over a wide range of conditions.

- The working parameters of ISU-IRT include:
  - *Test section size:* $W \times H \times L = 0.4m \times 0.4m \times 2.0m$
  - *Airflow velocity:* $V_\infty = 5 \sim 100$ m/s;
  - *Temperature:* $T_\infty = -25\ ^\circ C \sim +20\ ^\circ C$;
  - *Droplet size:* $D_{droplet} = 10 \sim 100\ \mu m$;
  - *Liquid Water Content:* $LWC = 0.1 \sim 5.0\ g/m^3$



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CURRENT RESEARCH SPONSORS:

NSF, NASA, DEPARTMENT OF ENERGY, AVANGRID RENEWABLES, GENERAL ATOMICS AERONAUTICAL, DUPONT, Pratt & Whitney, Collins Aerospace