Université du Québec à Chicoutimi

Anti-icing Materials International Laboratory (AMIL)

EXPERTS IN ICING AND COLD REGIONS ENGINEERING

MISSION
Support industries in solving problematic related to cold climates and icing while training highly qualified personnel through world-class research and development projects.

The following is a non-exhaustive list of activities offered by the laboratory:

- Realisation of small-to-large R&D projects involving or not graduate students of all levels
- Development and testing of de-icing and anti-icing systems
- Development of experimental setups and procedures representative of cold climates and icing conditions
- Simulation of snow and ice accumulations
- Characterisation of the physical properties of ice, ice adhesion and icephobic materials.
- Application and development of testing standards (ASTM, SAE, ISO, etc.)
- Applications for collaborative project grants (NSERC, CRIAQ, PRIMA, MITACS, etc.)

CURRENT AND COMPLETED PROJECTS

- NSERC - CRIAQ - Montreal Airport - Optimisation of winter operations for airport runways
- DND - IDEaS Program - Breaking the ice - Assisted Sacrificial Coatings for Mission Critical Rotorcraft Ground De-icing Operations
- NSERC - CRIAQ - Bell Flight - Low power De-icing Systems for Light Weight Helicopters

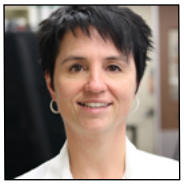
RESEARCH TEAM

Gelareh Momen, P.eng. Ph.D.
Scientific Director
Cold region engineering, icephobic coatings and innovative materials

Jean-Denis Brassard, P.eng. Ph.D.
Atmospheric icing, airport runways, cold climate operations, ground icing, de-icing and anti-icing of structures, material characterisation.

Derek Harvey, P.eng. Ph.D.
Material characterisation and system testing, design of ice protection systems, numerical simulation and optimization, advanced composite materials.

Eric Villeneuve, P.eng. Ph.D.
In-flight and ground icing, aircraft de-icing and anti-icing, aerodynamics, vibration, heat transfer and numerical simulation.



Caroline Blackburn, P.eng.
Icing of structures, ice adhesion, characterization of icephobicity, project and quality management.

Marc Mario Tremblay, chemist
Characterisation of anti-icing and de-icing materials for aircraft and runways.

For more information, contact us.

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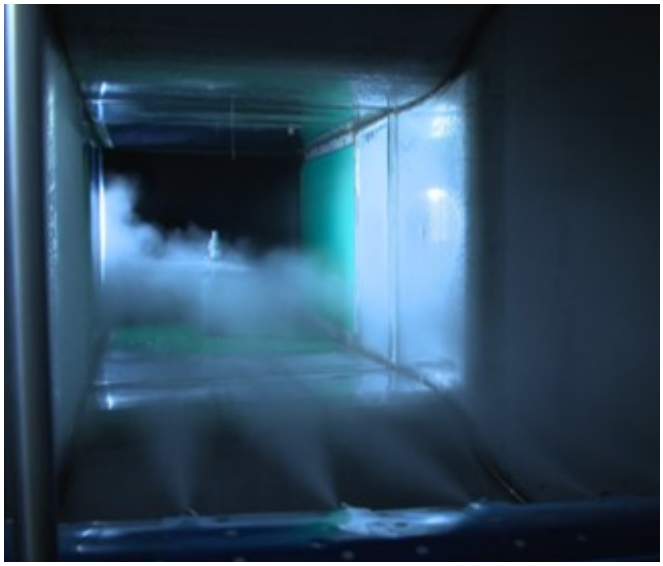

Five cold chambers

- 3 m to 9 m high
- Temperature control range of +10°C and -40°C
- Controlled simulation of precipitations:
  - Freezing rain
  - Snow
  - Freezing fog
  - Freezing drizzle
  - Sea spray

Two refrigerated, closed loop, wind tunnels

- Qualification of aircraft ground de/anti-icing fluids
- Simulation of in-flight icing conditions at temperatures as low as -40°C and wind speeds up to 110 m/s

Laboratory testing

- Evaluation of specialized products for aircraft and airport runways
- Characterization of icephobic materials
- Measurement of ice adhesion strength
- Evaluation of the mechanical properties of ice
- Rain erosion testing

Exterior winter testing

- Product testing in natural snowing conditions
- Validation of de-icing and anti-icing in natural conditions
- Observation and documentation of winter precipitations