

# Special Issue: Deicing and Anti-Icing of Aircrafts

Hirotaka Sakaue 

Department of Aerospace and Mechanical Engineering, University of Notre Dame, Notre Dame, IN 46556, USA; hsakaue@nd.edu

In-flight icing for aircrafts is a large concern for all those involved in aircraft operations. This Special Issue assembles a diverse selection of research papers on topics related to the deicing and anti-icing of aircrafts. These topics span experimental, numerical, and data science studies from droplet scale [1,2] to the system level [3–6], as summarized in Table 1. The editor is pleased to assemble 11 articles in this Special Issue. The readers will enjoy this variety of high-quality research on the deicing and anti-icing of aircrafts.

**Table 1.** Coverage of the Special Issue on Deicing and Anti-Icing of Aircrafts.

Coverage	Key Feature	Reference
Super-cooled large droplet	Anti-icing; Ice accretion; experimental study, numerical simulation	[2,7]
Prediction of ice accretion	Ice accretion; experimental study; numerical simulation; data science study	[8–10]
Anti-icing system	Anti-icing; ice accretion; numerical simulation; data science study	[1,11]
Deicing and anti-icing system	Deicing; anti-icing; ice accretion; experimental study, numerical simulation	[3–6]



**Citation:** Sakaue, H. Special Issue: Deicing and Anti-Icing of Aircrafts. *Aerospace* **2021**, *8*, 72. <https://doi.org/10.3390/aerospace8030072>

Academic Editors: Konstantinos Kontis

Received: 4 March 2021  
Accepted: 8 March 2021  
Published: 10 March 2021

**Publisher's Note:** MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



**Copyright:** © 2021 by the author. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

**Funding:** No received external funding.

**Acknowledgments:** The editor wishes to thank all authors who contributed to this Special Issue.

**Conflicts of Interest:** I declare no conflict of interests.

## References

1. Uranai, S.; Fukudome, K.; Mamori, H.; Fukushima, N.; Yamamoto, M. Numerical Simulation of the Anti-Icing Performance of Electric Heaters for Icing on the NACA 0012 Airfoil. *Aerospace* **2020**, *7*, 123. [\[CrossRef\]](#)
2. Hasegawa, M.; Morita, K.; Sakaue, H.; Kimura, S. Pinned Droplet Size on a Superhydrophobic Surface in Shear Flow. *Aerospace* **2020**, *7*, 34. [\[CrossRef\]](#)
3. Morita, K.; Kimura, S.; Sakaue, H. Hybrid System Combining Ice-Phobic Coating and Electrothermal Heating for Wing Ice Protection. *Aerospace* **2020**, *7*, 102. [\[CrossRef\]](#)
4. Villeneuve, E.; Volat, C.; Ghinet, S. Numerical and Experimental Investigation of the Design of a Piezoelectric De-Icing System for Small Rotorcraft Part 1/3: Development of a Flat Plate Numerical Model with Experimental Validation. *Aerospace* **2020**, *7*, 62. [\[CrossRef\]](#)
5. Villeneuve, E.; Volat, C.; Ghinet, S. Numerical and Experimental Investigation of the Design of a Piezoelectric De-Icing System for Small Rotorcraft Part 2/3: Investigation of Transient Vibration during Frequency Sweeps and Optimal Piezoelectric Actuator Excitation. *Aerospace* **2020**, *7*, 49. [\[CrossRef\]](#)
6. Villeneuve, E.; Volat, C.; Ghinet, S. Numerical and Experimental Investigation of the Design of a Piezoelectric De-Icing System for Small Rotorcraft Part 3/3: Numerical Model and Experimental Validation of Vibration-Based De-Icing of a Flat Plate Structure. *Aerospace* **2020**, *7*, 54. [\[CrossRef\]](#)
7. Takahashi, T.; Fukudome, K.; Mamori, H.; Fukushima, N.; Yamamoto, M. Effect of Characteristic Phenomena and Temperature on Super-Cooled Large Droplet Icing on NACA0012 Airfoil and Axial Fan Blade. *Aerospace* **2020**, *7*, 92. [\[CrossRef\]](#)

8. Samad, A.; Tagawa, G.; Morency, F.; Volat, C. Predicting Rotor Heat Transfer Using the Viscous Blade Element Momentum Theory and Unsteady Vortex Lattice Method. *Aerospace* **2020**, *7*, 90. [[CrossRef](#)]
9. Hann, R.; Hearst, R.; Sætran, L.; Bracchi, T. Experimental and Numerical Icing Penalties of an S826 Airfoil at Low Reynolds Numbers. *Aerospace* **2020**, *7*, 46. [[CrossRef](#)]
10. Li, S.; Qin, J.; He, M.; Paoli, R. Fast Evaluation of Aircraft Icing Severity Using Machine Learning Based on XGBoost. *Aerospace* **2020**, *7*, 36. [[CrossRef](#)]
11. Gagnon, D.; Brassard, J.; Ezzaidi, H.; Volat, C. Computer-Assisted Aircraft Anti-Icing Fluids Endurance Time Determination. *Aerospace* **2020**, *7*, 39. [[CrossRef](#)]