



1. Transport Canada Publication No. <b>TP 15274E</b>		2. Project No.		3. Recipient's Catalogue No.	
4. Title and Subtitle <b>Exploratory Wind Tunnel Aerodynamic Research Winter 2013-14</b>				5. Publication Date	
				6. Performing Organization Document No. <b>CM2265.003</b>	
7. Author(s) <b>Marco Ruggi</b>				8. Transport Canada File No.	
9. Performing Organization Name and Address <b>APS Aviation Inc. 6700 Cote-de-Liesse, Suite 105 Montreal, Quebec H4T 2B5 Canada</b>				10. PWGSC File No.	
				11. PWGSC or Transport Canada Contract No.	
12. Sponsoring Agency Name and Address <b>Transportation Development Centre Transport Canada 330 Sparks St., 26th Floor Ottawa, Ontario K1A 0N5 Canada</b>				13. Type of Publication and Period Covered <b>Draft</b>	
				14. Project Officer <b>Howard Posluns</b>	
15. Supplementary Notes (Funding programs, titles of related publications, etc.) Several research reports for testing of de/anti-icing technologies were produced for previous winters on behalf of Transport Canada. These are available from the Transportation Development Centre (TDC). Several reports were produced as part of this winter's research program. Their subject matter is outlined in the preface. This project was co-sponsored by the Federal Aviation Administration.					
16. Abstract This objective was met by conducting a series of full-scale tests using the NRC open circuit wind tunnel to examine the flow-off properties of anti-icing fluids contaminated with various forms of simulated freezing precipitation to investigate several recent industry operational concerns; this work was completed in conjunction with the ice pellet research being conducted at the NRC PIWT. <ul style="list-style-type: none"> <li>• EVALUATION OF AN AIRFOIL PERFORMANCE MONITOR: The testing conducted provided Marinvent with a platform for evaluating the APM unit, the details of which remain internal to Marinvent. Initial observations saw fluid get into the pressure probes of the APM unit; however the extent of the effects should be further investigated by the manufacturer. Future testing should be done with a wireless unit to minimize aerodynamic effects of passing wires over the wing.</li> <li>• AERODYNAMIC TESTING OF ICE PHOBIC COATINGS: A test plan was developed and conducted during the winter of 2013-14 to gain new insight into the potential applications of these coatings for aircraft operations, and to continue the research to include newly developed coatings. As part of this test plan, it was recommended that testing continue to investigate the effects of these coatings on de/anti-icing fluids from both a HOT and aerodynamic perspective.</li> <li>• EFFECT OF COOLING SYSTEM ON TESTING PROCEDURES: In general the concept has shown promise and with some effort to isolate the problematic areas of the system, the cooling system can become a critical tool for testing and will allow greater flexibility.</li> </ul>					
17. Key Words <b>Data Log, Airfoil Performance Monitor, Aerodynamic testing of Ice Phobic coatings, Type I Fluid, Ice Pellet dispensers, Cooling System, Heavy Contamination</b>			18. Distribution Statement <b>Limited number of copies available from the Transportation Development Centre</b>		
19. Security Classification (of this publication) <b>Unclassified</b>		20. Security Classification (of this page) <b>Unclassified</b>		21. Declassification (date) <b>—</b>	22. No. of Pages <b>x, 80 app.</b>
23. Price <b>—</b>					