

Welcome to...

5th Annual

AIRA Research Implementation Forum (RIF)



AIRA

A Brief Overview and Update

Joe Shaw

*Outgoing Chair, Executive Steering Committee
Aircraft Icing Research Alliance (AIRA)*

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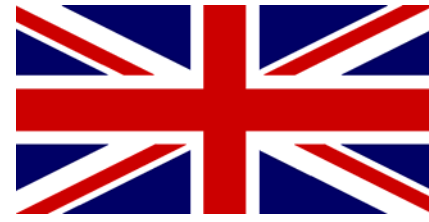
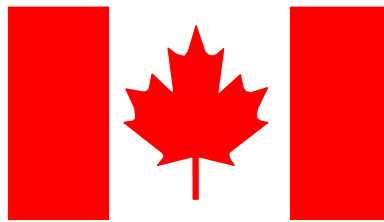
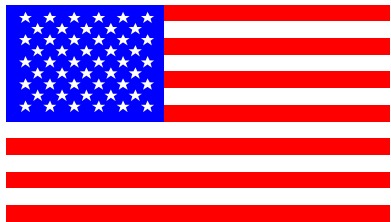
Our Mission

*“...to coordinate ... the conduct of **collaborative aircraft icing research** activities that improve the safety of aircraft operations in icing conditions.”*

Let's work together better!

Our current partners...

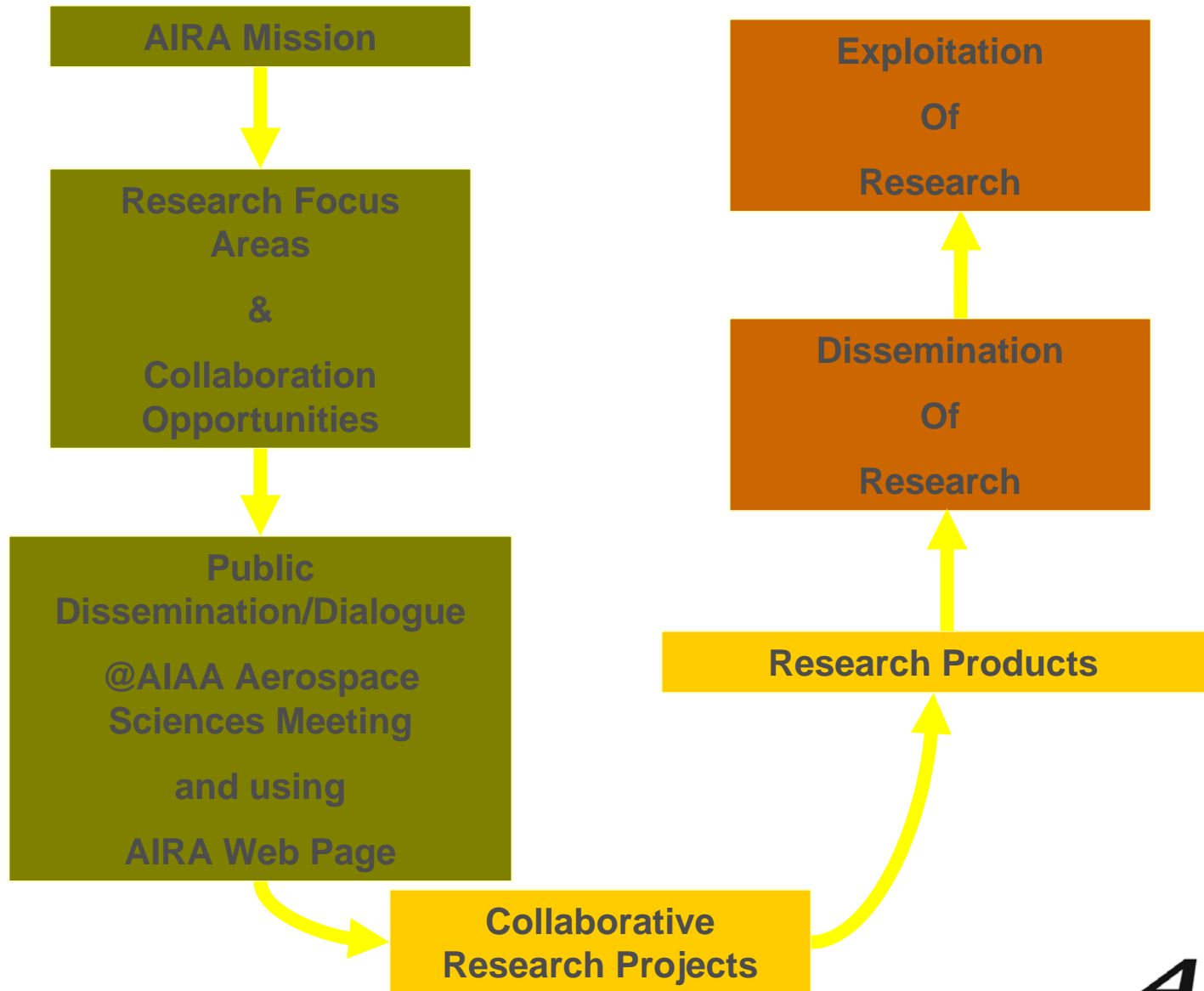
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- Environment Canada
- Transport Canada
- National Research Council of Canada (NRC)
- Canadian Department of National Defence
- UK Defense Science and Technology Laboratory (DSTL)



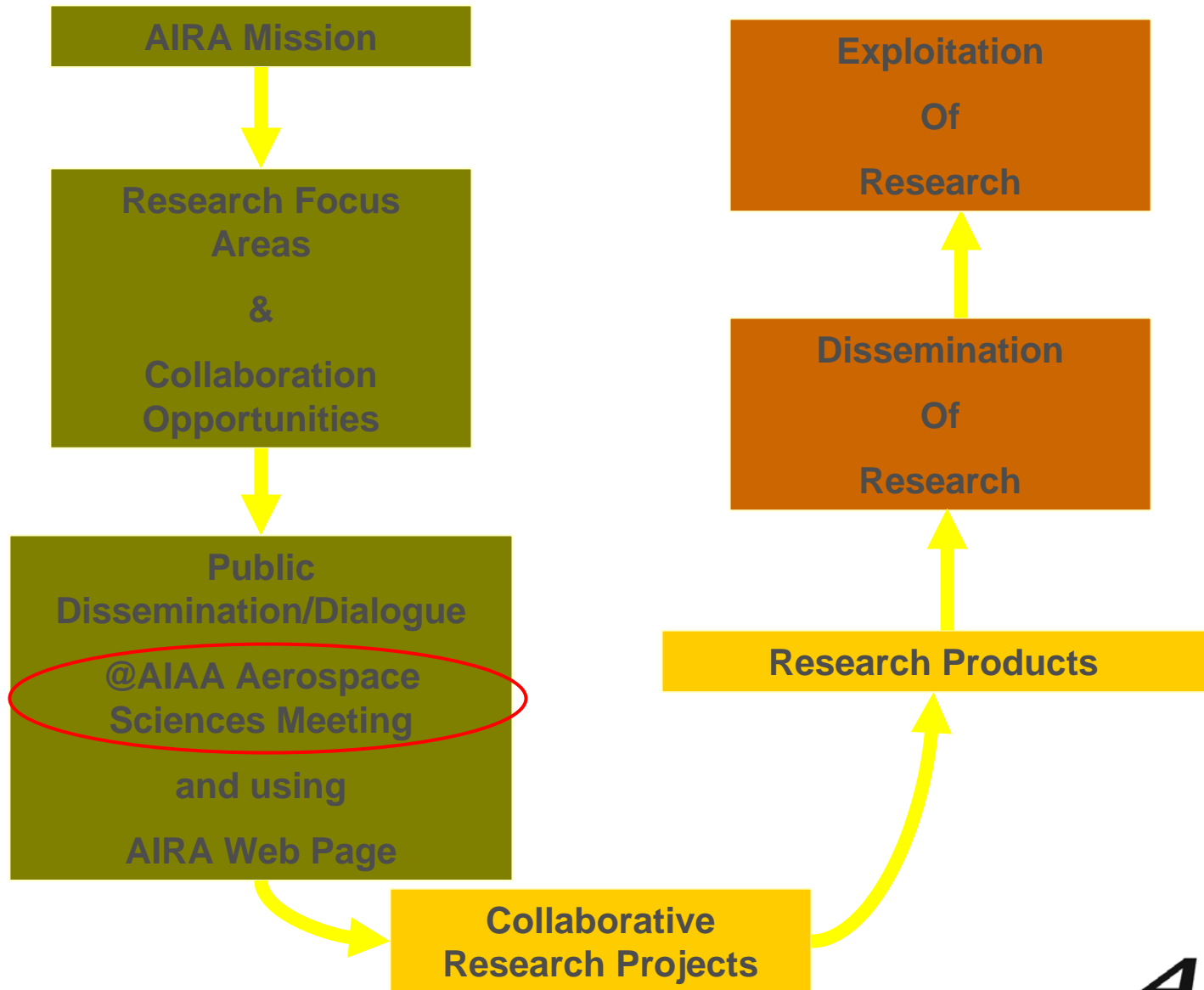
Our current structure...

- Protocol & Research Strategy Documents
- Executive Steering Committee (ESC)
Leadership, planning, and decision making
- Standing Subcommittees (SSC's)
All interested parties who wish to participate in project formulation, development, and execution

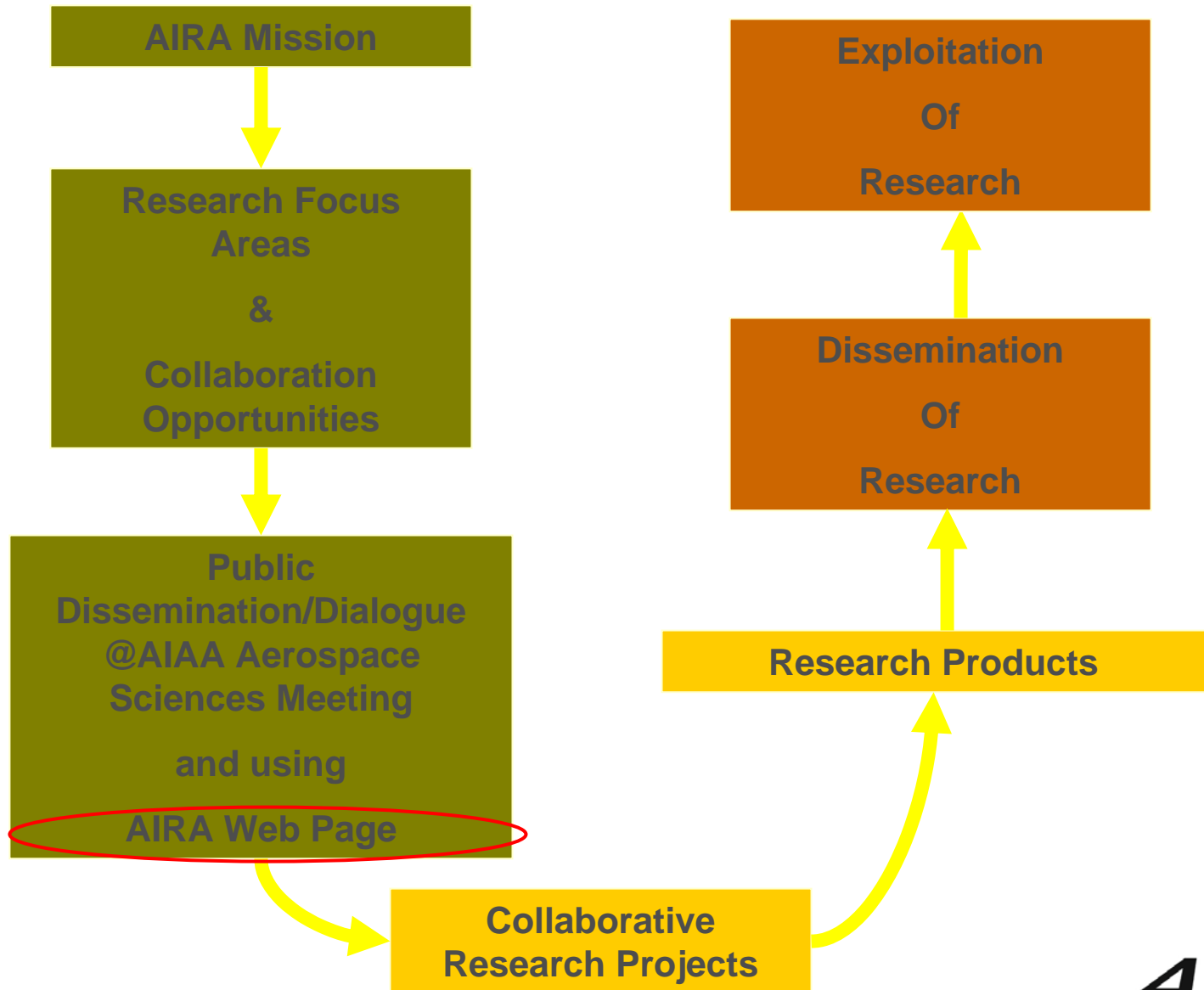
Our process...



Our process...



Our process...





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2007 RIF Planning Complete

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June 26-27, 2006 in Boulder, Colorado. The meeting jointly hosted by NCAR and NOAA was held at NCAR's Foothills Laboratory.

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AIRA participates in 2006 UK Rotorcraft Operations in Icing Conditions Forum

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Let's work together better!

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AIRA Priority Research Focus Areas (RFA's)

Theme	Sub Theme	Research Focus Area
In-Flight Icing	Aerodynamic Performance and Handling Qualities	1. Aerodynamic Performance and Handling Qualities in icing- Appendix C, SLD, ZR
	Atmospheric Characterization	2. High ice water content
	Weather and Forecasting	3. Nowcasting development and validation
		4. Dissemination of weather information
		5. Forecasting development and validation
		6. Remote sensing systems for icing detection
	Facilities, Simulators, and Instrumentation Systems	7. Comparison of tools, techniques and facilities and the establishment of standards
	Fundamental Ice Physics	8. Ice formation mechanics
		9. Scaling
	Ice Shedding	10. Ice shedding mechanisms
	Propulsion and Powerplant icing	11. High ice water ingestion
Aircraft Icing While on the Ground		12. Fluid integrity detection system
		13. Performance effects of limited contamination
Runway Winter Contamination		None
Operations, Human Factors and Training		14. Flight crew training module for operations in icing conditions
Safety and Economic Analysis		None
Emerging Technologies		None



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[Home](#) > [Collaborations](#) > [Overview](#)

Collaborations

Some collaborations do not yet have information.

Select a highlighted description to read more about that collaboration.

Description	Status	Partners
Alliance Icing Research Study (AIRS)	1.0, 1.5, 2.0 (debriefing) Completed	NASA, FAA, TC, MSC, NRC, NOAA
Icing for Rotorcraft Pilots	Ongoing	NASA, TC, RC Sikorski, Cougar Helicopters Inc.
Characterization of the Atmospheric Icing Environment	Ongoing	NASA, MSC
High Ice Water Content Research	Ongoing	NASA, MSC, FAA
Icing Cloud Instrumentation Development	Ongoing	NASA, MSC, FAA, NRC
Icing Environment Remote Sensing Systems Development	Ongoing	NASA, MSC, NOAA, FAA, Transport Canada
Common Practices for Processing and Analyzing Flight Data	Formulated	NSA, NSC
Icing Scaling	Formulated	NASA, NRC
Air 3.0 2008 Field Campaign	Formulated	
Ground Icing Training - GA Module	Formulated	NASA, TC, DND, FAA

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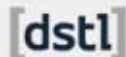
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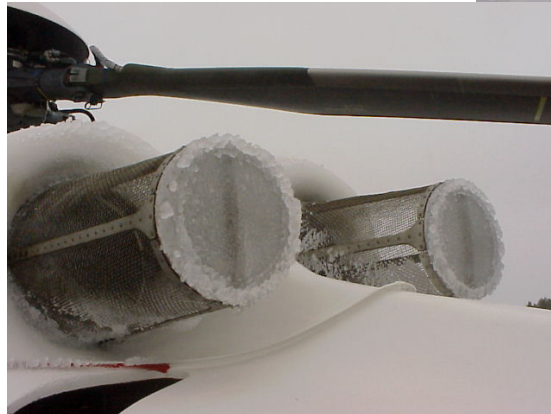
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Rotorcraft Icing - Training Materials

Icing for Rotorcraft Pilots - Instructor-led module

- **NASA partnering with Transport Canada, Cougar Helicopter, Inc., and Sikorsky**
- **Directed toward rotorcraft certified for flight into known icing**



Rotorcraft Icing - Training Materials

A Pilot's Guide to Helicopter Icing

- **Draft of training module completed; sections titled:**

*Rotorcraft Preflight
(Before you fly)*

Rotorcraft In Flight

- **Delivery design completed**

Instructor-selectable lesson plans for operator specific training needs



*Pictures courtesy
of Sikorsky*





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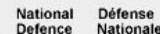
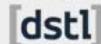
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Aircraft Icing Research Alliance

AIRA Newsletter, December 6, 2006

2007 Research Implementation Forum

Agenda Announcement

The **Executive Steering Committee of AIRA** has lined up what we believe will be an exciting, informative **5th Research Implementation Forum (RIF)**, which will be held in conjunction with the AIAA Aerospace Sciences meeting in January 2007.

This RIF session will be held on **Monday afternoon, January 8, 2007, from 2-6 pm**. If you have an interest in aircraft icing, we invite you to join us on Monday afternoon in Reno, Nevada!

For more information:

- [View the 5th RIF Agenda](#)
- [Go to the 43rd AIAA Aerospace Sciences meeting website](#)
- [Subscribe a friend to the AIRA newsletter](#)
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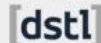
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News

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**AIRCRAFT ICING RESEARCH ALLIANCE (AIRA)
RESEARCH STRATEGY**



Version 2.0 January, 2007

AIRA's current emphasis...

- Exploration of collaborative efforts focused on:
 - propulsion system icing
 - ice adhesion/shedding on rotating surfaces
- Increase European involvement in AIRA
- Assess needs/opportunities for icing research focused on UAV applications

AIRA's current emphasis...

-Exploration of collaborative efforts focused on propulsion system icing

- Sponsored session on topic at ASME/IGTI Annual Conference (May 2006 in Barcelona, Spain)
- In process of developing follow on planning effort, interfacing with other, ongoing planning effort(s)
- Seeking collaboration partners
- Planning session on topic at ASME/IGTI Annual Conference (May 2007 in Montreal)

-Increase European involvement in AIRA

-Assess needs/opportunities for icing research focused on UAV applications

AIRA's current emphasis...

-Exploration of collaborative efforts focused on propulsion system icing

-Increase European involvement in AIRA

- Sponsorship of ASME conference session on propulsion icing

- Participated in Royal Aeronautical Society's Rotorcraft icing Conference (June, 2006 in London)

- Formally invited three organizations to become members:

 - ONERA (France)

 - Instituto Nacional De Tecnica Aeroespacial (Spain)

 - Centro Italiano Ricerche Aerospaziali (Italy)

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Final Thoughts...

- AIRA has been a success BUT our best days could be ahead of us!
- AIRA's current emphasis
 - Development of collaborative efforts focused on propulsion system icing and ice adhesion/shedding of rotating systems
 - Increase European involvement in AIRA
 - Asses needs/opportunities for research focused on UAV icing
- Collaboration takes partners...you are invited, get involved!
- The AIRA Web site - <http://icingalliance.org> -is there to help you get involved!
 - Protocol
 - Strategy
 - Communication with AIRA members
- YOUR feedback, suggestions are truly welcomed!

Introduction of our new chairman...

Dave Marcotte

National Research Council of Canada