

**Monday, November 2, 2015**

7:00 pm – 10:00 pm	<b>Pre-Registration is open to all attendees arriving for the conference Office Suite 201</b> <b>Speakers for Workshops must register &amp; submit Presentations at this time</b>
6:00 pm – 10:00 pm	<b>Unmanned Systems Canada Board Meeting Only for the Board Members - Prince George Hotel</b>

**Tuesday, November 3, 2015**

7:00 am– 5:00 pm	<b>Registration / Help Desk Office Suite 201</b>
7:00 am – 8:30 am	<b>Continental Breakfast at Suite 200 C</b>
10:00 am– 5:00 pm	<b>Exhibition Hall is OPEN (Only Exhibitors)</b>
8:00 am – 5:00 pm	<b>WORKSHOP DAY</b>

<b>WORKSHOP A</b> Regulatory 8:00 am – 5:00 pm Suite 202 <b>Chairs: Stewart Baillie &amp; Eric Edwards</b>	<b>WORKSHOP B</b> Civil & Commercial Operations 8:00 am – 5:00 pm Suite 203 <b>Chair: Declan Sweeney</b>	<b>WORKSHOP C</b> Underwater & Surface UVS 8:00 am – 5:00 pm Suite 204 <b>Chair: Dr. Mae Seto</b>
<b>Workshop description</b>  This workshop is a review of the latest regulations published by Transport Canada. Representatives from the Canadian federal regulating body along with key members of CARAC will on hand to discuss and dissect key regulating aspects such as specifics of the SFOC to include exemptions, complex operations, compliant operators, etc. The workshop will also present and discuss the latest Notice of Proposed Amendment (NPA) efforts which should define the upcoming small UAS regulations for line of sight operations. And finally, a precursory look at how the BVLOS regulations are shaping up in Canada  <b>8:30 am to 9:30 am</b> Exemptions from the Requirement for SFOC  <b>9:30 to 10:00</b> Industry Experience with SI, Exemptions, SFOC	<b>Workshop description</b>  This workshop is aimed specifically at the integration of Unmanned Vehicle Systems (UVS) within the civil/commercial sector. This workshop is focused on supporting key sector pilot projects for its attending corporate end users, unmanned vehicle operators, manufacturers, developers, and researchers. Participants will be invited to actively contribute to the discussions on specific UVS scenarios  <b>9:00 am to 9:30 am</b> Canadian Real Estate Association (CREA) <b>Anna Laurence</b> Real Estate  <b>9:30 am to 10:00 am</b> National Research Council Canada <b>Dr. Iraj Mantegh</b> Power Utilities & Coast Guard	<b>Workshop description</b>  This workshop is aimed at taking a closer look at recent underwater projects and developments. Unlike the airborne sector the Underwater and surface vehicles are not restricted by heavy regulations, however, many other constraints are hindering their use and wide applications. This workshop will be an opportunity to meet key stakeholders of the sector and an occasion to further share concepts, designs, and technologies development for current and future research initiatives.

**10:00 am – 10:30 am Coffee Break Room 200 C**

<b>10:30 am to 12:00 pm</b>  Industry Experience with SI, Exemptions, SFOC Compliant Operator and UAV provisions	<b>10:30 am to 11:15 am</b> Royal Canadian Mounted Police (RCMP) <b>S/Sgt David Domoney</b> <b>National Strategy for Public Safety and Emergency Management</b> <hr/> <b>11:15 am to 12:00 pm</b> Ag Business & Crop Inc. <b>Felix Weber</b> Agriculture	Workshop continues
--	---	--------------------



**12:00 pm – 1:30 pm Lunch Break Room 200 C**

<b>1:30pm to 2:30 pm</b> Presentation by Transport Canada regarding Regulatory Status and the Recent Notice of Proposed Amendment <b>2:30 pm to 3:00 pm</b> Discussion <b>3:30 pm to 4:30 pm</b> Beyond Visual Line of Sight Operations of UAS	<b>1:30pm to 2:15pm</b> McInnes Cooper Lawyers <b>David Fraser</b> <b>Privacy &amp; Drones</b> <hr/> <b>2:15pm to 3:00 pm</b> Unmanned Systems Canada <b>Airspace Access and SFOC Developments</b>	Workshop continues
---	--	--------------------

**3:00 om – 3:30 pm Coffee Break Room 200 C**

<b>Section 3</b> of the program ties all of the day's events together to assist in identifying and designing pilot projects to provide each industry sector with a way forward in the adoption of Unmanned Vehicle Systems. The sector presenters will, with facilitator assistance, lead four parallel breakout discussion groups (Real Estate, Agriculture, Utilities and Search & Rescue) exploring regulatory challenges and solutions, technology gaps and possible collaborative opportunities. The workshop participants will be invited to contribute to various groups based on their expertise. Finally, the floor will be opened up to summarize findings and opportunities from the four discussion groups.  <b>Real Estate Agriculture</b> <b>Power Utilities / Coast Guard Search and Rescue</b>	
---	--

**Wednesday, November 4, 2015**

7:00 am – 5:00 pm	Registration / Help Desk			
12:00 pm – 1:30 pm	Continental Breakfast at Exhibition Hall			
8:00 am – 7:00 pm	Exhibition Hall Opens Suite D/E			
<b>Civil &amp; Commercial – Plenary Suite C</b>				
8:00 am – 8:10 am	Conference Chair, Marc Moffatt			
8:10 am – 8:30 am	Opening Address by <b>James Halton</b>			
8:35 am – 8:55 am	Employing Unmanned Underwater Vehicles for Arctic Science <b>David Hopkin</b>			
9:00 am – 9:25 am	NRC Civil UAS Program Overview, Goals, and Update <b>Iraj Mantegh</b>			
9:30 am – 9:55 am	Autonomous Vehicles <b>Barrie Kirk</b>			
10:00 am – 10:30 am	Coffee Break at Exhibition Hall Sponsored by			
10:30 am – 10:55 am	Transport Canada, Standards Branch - <b>Aaron McCrorie</b>			
11:00 am – 12:00 pm	"The legal, liability and privacy aspects of Unmanned Vehicle Operations"			
12:00 pm – 1:30 pm	Lunch – Exhibition Hall			
<b>Afternoon Breakout Sessions</b>				
Timeline	Stream 1 Suite 202-203	Stream 2 Suite 204-205	Stream 3 Suite C-1	Stream 4 Suite C-2
1:30 pm - 1:55 pm	Applications of Synthetic Aperture Radar on Small Unmanned Aerial Vehicles <b>Adam Robertson</b> IM SAR	High-resolution 3D modelling of large, hard-to-reach objects <b>David Proulx</b> Aeryon Labs Inc.	QUADCROISER – A Groundbreaking Hybrid Fast VTOL Family <b>Ludwig Eberle</b> Airbus Defence & Space	The Feasibility of Using a Small Unmanned Aerial System for Studying Seabird Colonies at Remote Locations <b>Paul Pace</b> Defence Scientist, Retired
2:00 pm - 2:25 pm	Terrain modelling – when to use LiDAR and when imagery will do <b>Curtis Parks</b> RME Geomatics	3D optical sensor with 360 degrees field-of-view <b>Nathalie Renaud</b> INO	Visual Servoing for UAV Autonomous Landing <b>Iryna Borschova</b> Memorial University Newfoundland & Labrador	Use of a Small Rotary-winged Unmanned Aerial Vehicle (UAV) or "Drone" to Survey Nest Contents of Four Species of Birds of Prey <b>Dr. David Bird</b> McGill University
2:30 pm - 2:55 pm	On the Convergence between the Software for Autonomy and the Software Defined Radio <b>Greg Broten</b> Western Synaptic Research	Real-time Content network from autonomous Camera Technology <b>Cameron Chell</b> TraceLive Network	Training for UAV Operators in Image Capture and Processing <b>Yifei Zhao</b> Humber College/NTFG Aerial	Evaluation and Application of a Robotic Aircraft in Wildlife and Habitat Research and Conservation <b>Jeremy Byatt</b> ING Robotic Aviation
3:00 pm – 3:30 pm	Coffee Break – Exhibition Hall			
3:30 pm - 3:55 pm	Enhancing UVS Operator Simulator Immersion Through The Integration of Virtual Reality <b>Jeffrey Haber</b> Carleton University	Unmanned Systems R&D Park <b>Larry Gaudet</b> Slemon Park Corporation	Lessons Learned: Monitoring Pipeline Assets <b>Steve Myshak</b> Ventus Geospatial Inc.	In-Flight Icing of Small and MALE UAVs – Experimental Investigation <b>Dr. Ali Benmeddour</b> National Research Council
4:00 pm - 4:25 pm	National Research Council Activities on Sense & Avoid <b>Cyrus Minwalla</b> National Research Council of Canada	Bringing Drones to the Enterprise: Enabling Business to Scale in the Commercial Marketplace <b>Jesse Kallman</b> Airware	Application of a Robotic Aircraft for Critical Infrastructure Inspections and Monitoring. <b>Charles Vidal</b> ING Robotic Aviation	Coastal Environmental Monitoring using Precision Hawk <b>Andrew Clark</b> University of PEI
4:30 pm - 4:55 pm	Flight Test of a Prototype Detect and Avoid System on Predator B Remotely Piloted Aircraft System <b>Dr. Kevin Kirk</b> GA-ASI	Ethical considerations of nonmilitary UAVs <b>Goetz Bramesfeld</b> Ryerson University	Towards Quiet UAS for Commercial Operations <b>Richard Gaeta</b> Fail-Safe Solutions	Development and Implementation of UAV 4D Synchronization Encounter Flights <b>Scott Fang</b> Memorial University Newfoundland & Labrador
Come join us at the HUB 5:00 pm – 7:00 pm Opening Social – *Cash Bar* Exhibition Hall				

**Thursday, November 5, 2015**

7:00 am – 4:00 pm	Registration / Help Desk
7:00 am – 8:30 am	Continental Breakfast at Exhibition Hall
8:00 am – 5:00 pm	Exhibition Hall Open Suite D/E
<b>Military Plenary Suite C</b>	
8:00 am - 8:25 am	Opening Military Remarks by <b>Colonel Jason Major</b>
8:30 am – 8:55 am	Army Update by <b>Capt Matt Shoniker</b>
9:00 am – 9:25 am	Navy Update by <b>Commander Simon Nadeau</b>
9:30 am – 9:55 am	AirForce Update by <b>Major John Whalen</b>
10:00 am – 10:25 am	Coffee Break – Exhibition Hall
10:30 am – 10:55 am	SAR Secretariat, by <b>Major Graham Newbold (Ret'd)</b>
11:00 am – 11:25 am	National Public Safety & Emergency Management Operational UAS Strategy Workshop, by <b>David Domoney, RCMP</b>
11:30 am – 12:00 pm	Association Update, by <b>Stewart Baillie, Chairman</b>
12:00 pm – 1:30 pm	Lunch Break – Exhibition Hall

**Afternoon Breakout Sessions**

	Stream 1 Chair: Suite 202-203	Stream 2 Chair: Suite 204-205	Student Paper Competition Chair: Stream 3 Suite C-2	Stream 4 Chair: Suite C-1
1:30 pm – 1:55 pm	“Model Aircraft are NOT Drones” – MAAC’s Role in Safety and Public Education <b>Marc Sharpe</b> Model Aeronautics Association of Canada (MAAC)	Armed ISR – Status of Airbus’ TANAN Project <b>Ludwig Eberle</b> Airbus Defence & Space	Elevation Gradients from Side-Scan Sonar for Improved Data Association towards Persistent Underwater Slam <b>Collin Mackenzie</b> Dalhousie University	The 2014 Victoria Strait Expedition: Searching for Sir John Franklin’s lost ships with the Arctic Explorer Autonomous Underwater vehicle <b>Vincent Myers</b> DRDC Halifax
2:00 pm - 2:25 pm	Risk Management for UAV Operations in Canada : Realities, Challenges and What Lies Ahead <b>Calvin Reich</b> Capri Insurance	MALE UAS Airspace Integration - Challenges & Solutions <b>Nir Tel-Oren</b> IAI Military Aircraft	Detecting mineral ore bodies with UASs instrumented with magnetometers <b>Michael Cunningham</b> Carleton University	The Canadian Armed Forces Joint Arctic Experiment 2014: Air and Ground Unmanned Experiments in the Far North <b>Simon Monckton</b> DRDC Suffield
2:30 pm – 2:55 pm	BVLOS Situational Awareness Safety Display <b>Paige Cutland</b> Kongsberg Gallium	Enhancing UVS Operator Simulator Immersion Through The Integration of Virtual Reality <b>Jeffrey Haber</b> Aerospace Engineering Ryerson University	Motion Control of Unmanned Aerial Vehicles (UAVs) with Time Delay Compensation <b>Geoff Fink</b> University Alberta	Underwater SLAM for Change Detection <b>Dr. Mae Seto</b> DRDC Halifax
3:00 pm – 3:30 pm	Coffee Break – Exhibition Hall			
3:30 pm – 3:55 pm	Municipal Governments - Initiatives to Regulate Use of UAVs <b>Catherine Pawluch</b> DLA Piper (Canada) LLP	Worldwide and regionally focused L, X, Ku and/or Ka-band satellite communication services for air platforms and associated avionics <b>Robert McCord</b> SATCOM Direct	A Distributed Multi-operator Aerial Imaging System and Workflow for UAS <b>Duncan Elliott</b> University of Alberta	Development of 3rd Party Behaviours for Autonomous Marine Vehicles <b>Kathleen Svendsen</b> Lloyd’s Register Applied Technology Group
4:00 pm – 4:25 pm	Current Regulatory Framework For Integration of UAS <b>David Morton</b> Unmanned Experts Inc.	Data Link Data Rate Requirements of the EU project AEROCEPTOR and Spectrum Allocation recommendations to Standardisation for UAV for commercial and civil operations <b>Franco Fresolone</b> AIT Austrian Institute of Technology GmbH	Application of UAV technology in construction project management <b>Shahab Moeini</b> SAIT Polytechnic	Deck Landing Cueing in Unmanned Aircraft Systems <b>Dr. Bernard Ferrier</b> Hoffman Engineering
4:30 pm – 4:55 pm	Unmanned Aerial Systems (UAS) for Security Management and Rapid Response coordination <b>Shahab Moeini</b> SAIT Polytechnic	Design and Development of an RC TRex 700E UAV Helicopter for Flight Test Data Gathering and Subsequent Mathematical Modelling <b>Ken Hui</b> National Research Council	The Integration of UAV Systems in Public Safety and Security Interventions of a Major Canadian City <b>Anne-Sophie Riopel-Bouvier</b> EXO TacTik	A Survey of recent developments and challenges on unmanned surface vehicles <b>Zhixiang Liu</b> Concordia University

5:00 pm	Exhibition Closed			
5:00 pm – 6:00 pm	Annual General Meeting – Unmanned Systems Canada Members Only at Suite 202-203			
7:30 pm – 10:30 pm	Unmanned Systems Canada Gala Awards Dinner		Marriott Hotel Ballroom	
	7:30 pm - Reception Foyer	8:00 pm - Awards Dinner	* Cash Bar	*Business Attire*



**Friday, November 6, 2015**

9:00 am – 2:30 pm At Survival Systems Training Facility 40 Mount Hope Avenue, Dartmouth NS Busses will be provided	<p><b>Demonstration Day sponsored by Atlantic Alliance of Aerospace &amp; Defence Associations and Survival Systems Training Ltd</b></p> <p>Join us on Friday, November 6<sup>th</sup> for an Unmanned Systems Showcase and live industry demonstrations featuring marine unmanned systems technologies at Survival Systems Training’s revolutionary training facilities. SSTL’s state of the art facilities have been designed for use in water survival and underwater egress training for the Oil &amp; Gas, aviation and marine sectors using extreme environmental effects to simulate real world conditions in harsh or high-risk situations.</p>
8:00 am – 12:00 pm	Exhibition Teardown